THE BUILDER

A Journal for the Architect & Constructor

FEB. 3, 1928 No. 4435

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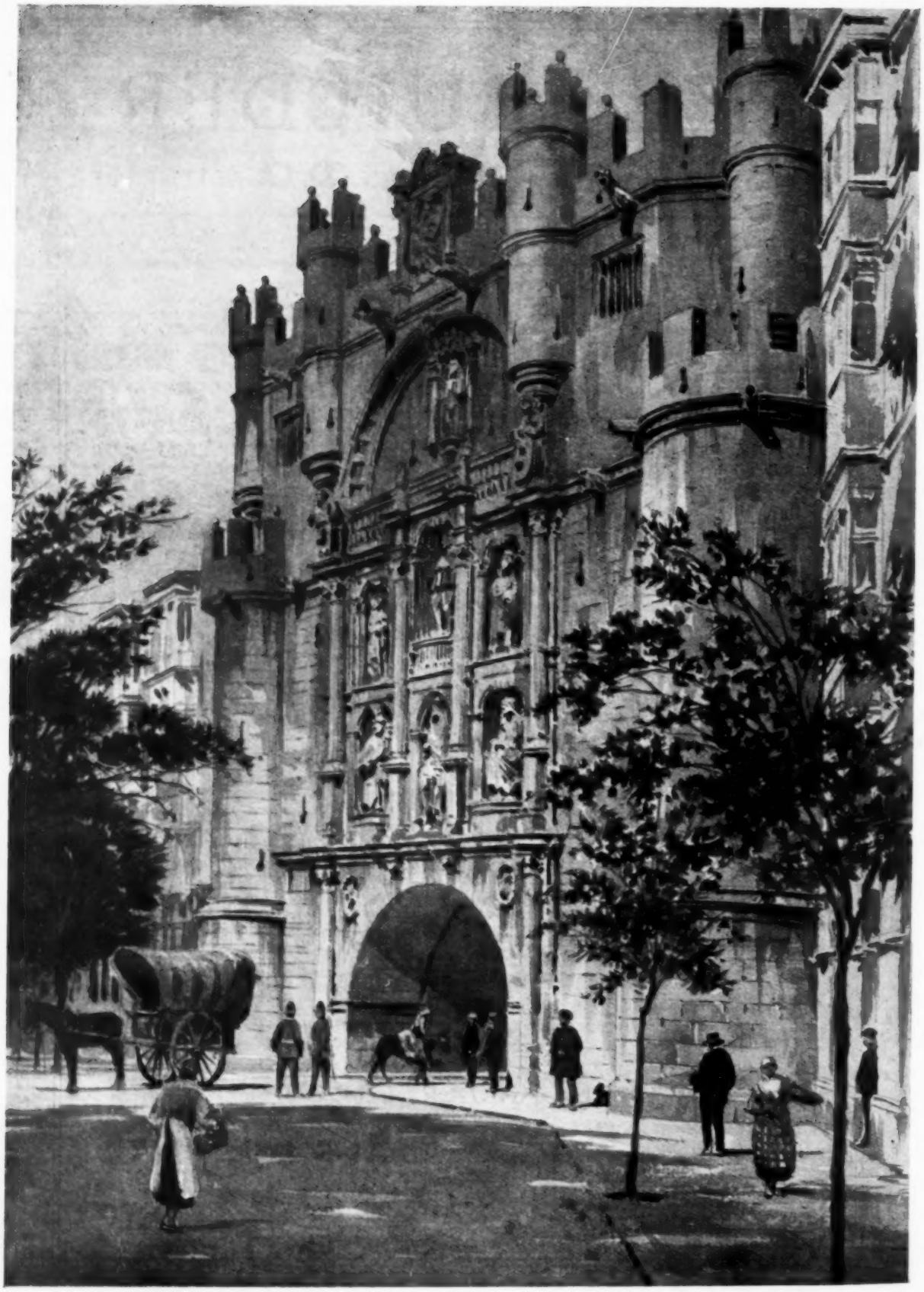


The City Gate, Burgos.

From a Water-colour Drawing by MR. A. C. FARR.

THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

VOL. CXXXIV. No. 4435 FEBRUARY 3, 1928.

SCIENCE IN ARCHITECTURE

IN the good old days of the Renaissance, architects in Italy combined the practice of their profession with one of the decorative crafts or with what we now call "engineering," and there were a few rare souls who actually carried on all three branches of work. Wren and Perrault are often held up to us as examples of the architect-scientist, but in point of fact they were both scientists who side-stepped into architecture in ripe middle-age, more or less accidentally and partly because of family influence. They were scientists who became architects, not architects who dabbled in science because they loved it. During the eighteenth century, English architects confined their activities mainly to their own sphere, occasionally designing bridges with due regard to the Manner of the Ancients, but concentrating especially on the correct application of the Orders to "Gentlemen's Mansions." While they argued about intercolumniation and entasis, a little cloud appeared upon the horizon: it was the first Engineer properly called. Up to that date, architects had cheerfully accepted any engineering commissions that came along, for the work required was of a somewhat empirical nature, involving the use of earth, masonry, timber, and not much else. The invention of the steam-engine gave the new profession a further excuse for coming into being, the increased use of iron in building set the tide running fast, and the subsequent discovery of Portland cement and steel were additional landmarks in the movement which has assigned to civil engineers a continually increasing amount of structural work. Chambers and Gwilt, in their day, both noted the arrival of this new portent with some dismay. They saw that men like Smeaton and Rennie would eventually obtain much specialised work that architects had hitherto carried out.

Much of this change is inevitable. It is matched in every walk of life where specialisation has followed on discovery. But there must be some point at which building becomes, or should become, the prerogative of the architect. One cannot believe that the builder should ever relieve the architect of ultimate responsibility for structural design: the intent of a modern building contract is partly to define the architect's function as solely responsible for design and supervision, and the builder's duty in carrying out the architect's instructions. If any of the responsibility for design, direction, and decision be transferred from the architect to some other functionary—builder or engineer—then the architect's status is weakened, and his authority diminished. Whatever else may be said, it is surely an essential condition of an architect's training that he should be able to maintain his position in his own profession against all rivals from other professions.

Admitting frankly that scientific discovery has advanced so rapidly of recent years that many an architect finds himself left behind, how is it possible for him—either during his training or afterwards in practice—to keep pace with increasing demands made upon his technical knowledge? The danger point seems to be in the early years of practice, where a "compo." floor that has cracked or a hot-water system that will not work may antagonise clients whom he cannot afford to lose. While he remains an assistant he is sheltered from these icy blasts; perhaps after he becomes an A.R.A., and gets knighted, it may be that it does not matter so much.

It seems most important that an architect should possess a complete grasp of all processes and materials involved in the erection of a building of ordinary type and size; the calculation of steelwork for very large structures and the design of elaborate lighting and heating installations are matters best assigned to specialists, paid accordingly. But what, exactly, does a limited range as we have indicated involve in the way of technical knowledge, and how is that knowledge best obtained? "Refresher-courses" have been recently suggested, but one thinks inevitably of the proverb about the stable-door as being still more to the point. The thing is to prevent the steed being stolen.

Even more essential than an academic acquaintance with acoustics and reinforced concrete is the quick, intelligent, adaptable mind, capable of solving an unexpected problem in building without much previous experience of it, by deductive rather than empirical methods. That is the mind that will pacify the woman-client who is annoyed because a smoky chimney has spoiled her new curtains, for the architect gifted with such a mind rushes instinctively to open the damper of the stove that has caused the mischief. He is equally happy at directors' meetings, where an apparently rich fund of practical experience creates a favourable impression. Without going into details which are the province of the educational expert, we may say that this instinct for solving problems can be created to some extent by a very simple course of scientific training on experimental lines, such as already exists in some places.

Problems in mechanics and questions on the nature of building materials form part of the requirements for the R.I.B.A. examinations, but the study of such things is apt to become very dry if it is solely a matter of formulæ and tables. The born architect has the artistic temperament, to which figures in themselves are sometimes abhorrent, dry meaningless things devoid of soul. His interest quickens, however, in proportion as such studies approach obvious actuality, and relate themselves to the drawing-board designs which he revels in. It is true, of course, that some budding architects learn some science at school, but it is not and cannot be related at that stage to their special needs in practice, nor do all students have even this modicum of preliminary study. The aim in view should evidently be to give so vivid and clear an insight into the principles of mechanics, chemistry, and physics—so far as they affect processes and materials in building—as will arouse a student's interest and stimulate his brain.

The R.I.B.A. has a hard-working Science Committee, and architects have taken a prominent part in establishing the Building Research Station. But to many of the rank-and-file the very word "science" is apt to be a bogey, eternally hostile to their "art." That is the root of the trouble. Every practising architect who visits the Building Research Station finds that each of its manifold activities has a direct bearing on the very problems that keep him awake at nights. It is to the interest of architects as a body, in order to retain the control of building that is their proper prerogative, that they should promote this subject of science from unpopular academic byways into the forefront of practical politics. All will admit that, in the early years of practice, a man's career usually hangs on his success in dealing with unexpected accidents rather than on actual design, and many architects have encountered similar difficulties at a later stage. They cannot rely entirely on engineers for advice on every aspect of scientific construction, nor on commercial travellers for disinterested opinions on proprietary materials. They are responsible, in the eyes of the law and of the plain man, for a knowledge of building in all its branches, and upon the measure of that knowledge their success will largely depend.

NOTES

Towards a New Architecture.

IN reviewing in a contemporary Le Corbusier's "Towards a New Architecture," Sir Edwin Lutyens refers to the author's statement that "Architecture has nothing to do with styles" about which so much is written and so much misunderstood. No architect can dissociate himself, even if he would, from the past, and though unconscious of it, in the full creative exercise of his vocation it must none the less be there, seeing we have eyes to see and brains to interpret and are subject to the impressions received from around us all the time. As is so gracefully expressed by the reviewer, "In all successful architectural design, you can draw no hard line. Each part is mother to the others, and the whole one a family of sweet intercourse and gentle behaviour." It is not whether we would disregard the past—we cannot do so altogether—though when we are producing, its influence is felt unconsciously. Custom, habit, climate, will differentiate the forms, but all good architecture to-day is reinforced by the eternal elements that subsist in all art, and inspire it.

Oxford Preservation Trust.

LAST week, at the first general meeting of the Oxford Preservation Trust, it was announced by Sir Michael Sadler that the trustees hope to play their part in working "for the covering of some of the open spaces with well-planned and beautiful buildings." This is a new development of the Oxford Trust of considerable interest to architects. For in the original document it was stated that the Trust asked for funds for three purposes—to keep unspoiled the belt of meadow and park that still surrounds central Oxford; to preserve old houses, likely to be destroyed as commercially unprofitable; and to keep free from building certain tracts of land from which can be enjoyed beautiful distant views of the ancient city. But Sir Michael Sadler now talks of new "beautiful buildings." This is a hint that Mr. Fisher, the Warden of New College, Dr. Joseph Wells, the former Vice-Chancellor, and others have in mind asking an architect who has a world-wide reputation to draw up designs for the rebuilding of parts of the City of Oxford. This is, of course, an extremely ambitious project, and the Trustees intend to walk warily, we are told, producing a book of ideal views before they attempt to start upon the materialisation of their scheme. If the donations continue to be so entirely insufficient to achieve even the primary objects of the Trust, their architectural projects are likely to be delayed for some considerable time.

Informal Discussions on Architectural Topics.

THE recent suggestion that informal discussions should be held at the R.I.B.A. upon subjects of interest to architects, should not be allowed to lapse. There are, as pointed out by Mr. Tatchell in the Journal of the Institute, many problems constantly arising in the rough and tumble of general practice, and the knowledge necessary for their solution can only be acquired by experience. We trust that no time will be lost in giving effect to this suggestion, and we cordially agree with another architect in the opinion that it would be of immense value to the profession generally if some form of condensed record of the general conclusions of such meetings could be obtainable by all the members of the Institute.

Coat of Arms, University College, London. Portland Stone, 10 ft. high.
MESSRS. RICHARDSON & GILL, FF.R.I.B.A., Architects. MR. P. G. BENTHAM, R.B.S., Sculptor.

Dorchester House.

THE sale of Mr. R. S. Holford's house in Park-lane is but a further stage in the remarkable transition that is taking place from old habits of life and methods of building. Whereas in old days we built for permanence and the endurance of the home, all this is gradually being replaced by a more impersonal form of building, and the former characteristic no longer prevails. For there is little sense of permanence in the apartment block, the building itself being only more or less temporary. The transition stage in the neighbourhood of Park-lane and Mayfair is not without its poignant side. To wander through this neighbourhood is to find a melancholy hovering over the life of its streets. The houses seem left behind. Adjacent to them and overshadowing them, enormous blocks of apartment flats dominate and dislocate the old surroundings. The old. more reticent, courtly way of living yields to the tide that is submerging this more individual side. It is said all this is towards making us "individually small but racially godlike," as we boast of the "team spirit" when we mistake the herd instinct for it. It may be this is well, yet it would seem improbable that in buildings not built for permanence we can look for the kind of beauty that permanence foretells. A good architect may be called in to add a few embellishments, because they are found to pay, but whether the use of art in this way is in any sense "godlike" or bears any relation to the source from which it springs, will appear to some of us doubtful.

Roadside Amenities.

WE are glad to read that a note has been issued recently by the Minister of Transport to encourage local authorities in their task of fostering roadside amenities. The passing of the Roads Improvement Act, 1925, empowered (so we understand) the Ministry of Transport to make grants from the Road Fund towards the outlay incurred by local authorities in planting roadside trees, shrubs, and grass margins. Up to the present our highway authorities have provided new arterial roads with easy gradients, but they are neither

Cherub's Head in Carved Limewood.

pleasing to the eye nor, judging by recent criticisms, are they safe for the motorist. In these days of "safety first" it is reasonable to expect that roadside amenities will take second place to the problem of finding a safe road surface. But the wise motorist will encourage this scheme of roadside tree planting, even if he has to exercise a certain amount of caution in negotiating a road strewn with wet leaves. This note from the Minister of Transport is a timely reminder that the ugly road made specially for the motorist may be the quickest route from point to point, and the quickest method of killing our enthusiasm for motoring.

Beauty and Political Economy. We have given as a nation too much importance, we are told, to the cult of commerce, and too little to the ideal and love of beauty. Perhaps we have. "We are all borne along in the car of industry," says Mr. John Galsworthy, "driven by that blind driver, our own competitive mood." Economic production, science, development, and discovery cannot save us, pursued in the rampant competitive mood. But this is hardly the position or the attitude as it appears to-day. The physical health and well-being of the nation depend upon a sufficiency of material comfort. This is a sober truth, whatever its relation may be to the pursuit of beauty as a national ideal. We bear in mind that there was a time when houses were beautiful while we were comparatively poor, whereas we created a wilderness of ugliness—during the period of industrial expansion—while we were comparatively wealthy. Consequently, these contradictions might seem to point to the futility of discussing in these columns the dreary science of political economy—in other words, pure commercialism. It is true that architecture, like nations, and like men, can be healthy and happy though comparatively poor. Nevertheless, we can be poor in the sense of not being rich, but unemployment, in its fundamental meaning, is a totally different thing from poorness. It is a disease, comparable with paralysis.

Art for Schools Association. It is a matter for regret if the Art for Schools Association has come to an end, but we are glad to notice the subject is again receiving attention. The pamphlet recently issued by the Board of Education seems to be much on the lines of the Association; it therefore seems a pity that the means could not be forthcoming to enable it to carry on its work. For it is not desirable that it should be left only to ordinary commercial enterprise, which might be the case should the present interest aroused encourage the hope of profit. We have seen somewhat inferior and conventional school pictures in schools which could be no assistance to right appreciation, whereas good pictures are a very valuable part of education and a high standard for them is most desirable. It should not be a very costly undertaking to supply good photographs for hanging on classroom walls and the early impressions received through them would help to direct the taste of the children in after life. There is so much set before their eyes of the ephemeral and vulgar in the streets that the value of good pictures in schools is not easily overestimated.

Mosaics at Westminster Cathedral. The suggestion made by Cardinal Bourne for a school of mosaic workers to be attached to Westminster Cathedral and to be set up in the precincts, has a good deal to recommend it; and if the principles are sound which govern the methods of craftsmanship, it should serve to encourage the best use of a very attractive medium for decoration. But there are mosaics and mosaics, a manufacture and an art, and, unfortunately, we are even more used to the former than the latter. We have in mind as an example of the wrong use, the "enriching" of a sanctuary in a great church in France in which an extensive series of mosaics were fixed into position with all the rapidity of wall-paper hanging, to which they were most akin, having none of the characteristics of the real medium. Put up in sheets on which the tesseræ had been stuck down at the manufactory, the result was as lifeless and ineffectual as the methods employed. Mosaics worked directly on to the wall by the cunning hand of the craftsman himself, with the undulations of surface and varying character of the material growing out of proper treatment, have another tale to tell altogether.

Carpets. For the furnishing of our houses the carpets are so important an addition to our pleasure in the surroundings that it is regrettable the general standard of floor carpets, both in design and colour, leaves so much to be desired. One may look in at almost any shop windows in which carpets are displayed and turn away in displeasure from the array of chalky, unpleasant, drab and muddy colours, with so few really wholesome and agreeable tints showing amongst them. We feel sure this might be remedied if the manufacturer would help us, and he has, for example, the better colour and design of carpets made by individual craftsmen, though the quantity available is so few. Seeing how great the contrast is between one and the other, we are more inclined to ask why the manufacturer cannot supply us with something more agreeable. Those of us who can afford it, in sheer despair of getting becoming modern carpets, fall back on antique examples. There can be no sufficient reason why the improvement so earnestly to be desired should not be taken in hand.

The Vagaries of Snobbery. In a recent article in *The Motor* we find an interesting comment upon the influence of motoring on clothing. Evidently the tailor is beginning to find that the wardrobe fund is being raided by the motor-car. "In former days," we read, "a man spruced up to proclaim his position. Now his chariot upholds his prestige, and he damns the sartorial consequences. Shabby clothes in a Rolls Royce may be incongruous, but are not put down to poverty; keeping a car is one way of keeping up appearances." Here, in another form, we have the complaint from the architect. Economics and snobbery seem to have a curious way of balancing themselves. The much maligned Victorian era represented, we suppose, the high-water mark of this snobbery of the house, while to-day we damn the architectural consequences. It may be that our philosophers were correct when they argued that a measure of snobbery was essential in certain forms of art.

GENERAL NEWS

Professional Announcements.

Mr. S. G. Stanton, A.M.Inst.C.E., M.I.M.E., Borough Engineer and Surveyor of South Shields, has been appointed to a like post with the Southampton Town Council, fallen vacant through the retirement of Mr. J. A. Crowther, A.M.Inst.C.E., M.S.E.

Mr. Reginald Browne and Mr. Andrew A. Fulton have entered into partnership as architects and surveyors, practising at 502, Edgware-road, W.2, and have been appointed surveyors to Maida Vale Estates, Ltd. Merchants' catalogues, samples and prices will be appreciated.

R.I.B.A. Examinations, November and December, 1927.

We are informed that the questions set at the Intermediate, Final, and Special Examinations held in November and December, 1927, have been published and are on sale at the Royal Institute, price 1s. 6d. (exclusive of postage).

Registration of Auctioneers.

The Incorporated Society of Auctioneers and Landed Property Agents have issued a statement that the Registration Bill they are preparing will provide for the automatic registration of everyone in bona-fide practice as an auctioneer, surveyor, valuer, land agent, or estate agent. Solicitors will be unaffected by the Bill.

The Tudor Palace at Enfield.

Erected by Edward VI. for the accommodation of his sister, the Princess Elizabeth; used subsequently as a grammar school; then turned into a post-office, with match-boarding to protect its magnificent oak panelling; and until the end of 1927 leased by the Enfield Constitutional Club, the historic Tudor Palace at Enfield is shortly to be demolished and its place taken by business premises.

Welwyn Cinema Studios.

Arrangements have been made between the Welwyn Garden City authorities and British Instructional Films for the immediate erection of studios at Welwyn. Two studios will be put in hand at once. Owing to the exceptional building facilities and to the fact that work is to continue day and night, the first will be available for use by the early summer. The site adjoins the L.N.E.R. main line station, and is surrounded by an area of 20 acres available at once for development, with a further unlimited area for future requirements.

The Boat-race.

In this year's Oxford University Boat-race crew appears the name of Mr. Hugh B. Arber, of Charterhouse and Wadham. Mr. Arber is the grandson of the late Mr. Wm. H. Arber, F.R.I.B.A., and son of Mr. John H. Arber. The latter is well known to most architects and builders by reason of his many years' association with Messrs. Thomas Parsons & Sons, enamel and varnish makers, of Oxford-street and Mitcham. In addition to his fine rowing and athletic record, Mr. H. B. Arber is a Scholar and Exhibitioner at Oxford.

New Beet-Sugar Factory, Lincolnshire.

It is officially announced that the firm of Stewart and Partners, Ltd., of London, Belfast and Dublin, have obtained the contract, amounting to over £350,000, for the erection of a beet-sugar factory at Brigg, Lincolnshire. The designers of the factory are Hallesche Maschinesfabrik, of Halle, Saxony. The machinery is to be of the latest design, and not less than 75 per cent. will be manufactured in this country, in accordance with Government regulations. Preliminary working on the site has begun, and the work of construction proper will begin shortly.

A Cottage Hospital, Southall.

The committee appointed to carry through a scheme for building a cottage hospital for the district have now bought a site. Plans are being prepared by Mr. H. S. Bostock, Broadway-chambers, Southall.

Acoustics of the L.C.C. County Hall.

We learn that six months ago the London County Council sought the aid of a firm which specialises in killing reverberation to attend to the bad acoustic conditions which prevail in the Council hall. When the process began the reverberation in the chamber was measured to be two seconds in length when the room was empty, and 1.75 seconds when full. Now, with the work half finished, the duration has been reduced to 1.7 seconds and 1.32 seconds respectively, and it is hoped eventually to bring it down to just over one second, which would provide nearly perfect conditions.

The Bodleian Library.

The suggestion that Oxford ought to consider the possibility of building a new Bodleian Library, at a cost estimated at £500,000, is made, says the *Daily News*, in a manifesto which has been circulated among the members of Congregation at Oxford. The manifesto, which is signed by a number of heads of colleges and prominent professors, points out that, in regard to organisation, buildings and equipment the Bodleian has been outstripped by other great libraries, and that a student using it instead of the British Museum or the Harvard University Library loses in every month at least a week of working time.

New Bridge at Marlow.

At a meeting of the Thames Conservancy Board, Lord Desborough presiding, the Works Committee reported that they had approved plans submitted by the Bucks County Council for a new bridge over the Thames at Marlow. The new bridge will have a headway of 14 ft. in the centre, with a springing level of 1 ft. above water-level at either side, and a clear span of 187 ft. The foundations of the abutments will be carried down to approximately 15 ft. below summer water-level. The great advantage of the proposed structure is that it will avoid the necessity for constructing a central pier in the river, which is necessary in the usual type of arched bridge.

OBITUARY

Mr. John Houston.

It is with regret that we record the death, as a result of a traffic accident, of Mr. John Houston, an architect in the City Engineers' Department of the Glasgow Corporation.

Mr. J. O. Smith, F.R.I.B.A.

We regret to announce the death, at 37, Beddington-gardens, Wallington, of Mr. James Osborne Smith, F.R.I.B.A., F.R.San.I., aged 80 years.

Mr. Frank Walton, R.I., R.O.I.

Mr. Frank Walton, R.I., R.O.I., died at the age of 87 at his residence at Holmbury St. Mary, near Dorking, on Monday morning. He had been an invalid for the last four years. Mr. Walton was for 21 years president of the Royal Institute. He was a close friend of Mr. George Edmund Street, R.A., the architect of the Royal Palace of Justice in the Strand. Mr. Walton was the son of Mr. James Walton, the publisher.

Mr. William Vinycomb.

We regret to record the death of Mr. William Vinycomb, one of the leading Irish artists and archæologists. He was a member of the Royal Irish Academy, a vice-president of the Royal Society of Antiquaries of Ireland, and a vice-president of the Ex-Libris Society of London. Mr. Vinycomb was one of the founders and a past president of the Belfast Art Society and the Ulster Art Club. On two occasions he was president of the Belfast Naturalists' Field Club.

COMPETITION NEWS

Masonic Senior School for Girls, Rickmansworth Park, Herts.

We have received the conditions and instructions to architects in this competition, which is being promoted by the Royal Masonic Institution for Girls. Architects of British nationality are invited to submit designs for a new senior school proposed to be built on a site of some 200 acres at Rickmansworth Park. Mr. H. V. Ashley, F.R.I.B.A., is the assessor. Premiums of £750, £500, £400, £300, and £200 are offered to the authors of designs placed first, second, third, fourth, and fifth respectively. Designs have to be sent in addressed to the Secretary, Mr. Maurice Beachcroft, the Royal Masonic Institution for Girls, 31, Great Queen-street, W.C.2, not later than Wednesday, September 5, 1928. Questions must be received by the Secretary on or before March 1, 1928. It is proposed to spend a sum not exceeding £350,000.

Lewisham Town Hall Extensions.

The Lewisham Borough Council have completed their scheme for a competition for extensions to the Town Hall. Mr. Winton Newman, F.R.I.B.A., has been appointed assessor, and premiums of £350, £250 and £150 will be offered. The scheme provides for the erection of an adequate Town Hall with its subsidiary rooms, etc., and as large a portion of the site as possible is to be available for shops and offices. The Town Hall is to have a minimum seating capacity of 1,200 persons and a maximum of 1,500, and is to have the usual cloak rooms and lavatories, together with suitable artistes' rooms and retiring rooms. A small hall is to be erected, with a minimum seating capacity of 300, with the usual accommodation.

The Rome Scholarships, 1928: Preliminary Competitions.

The Faculties of Art of the British School at Rome have selected the following candidates to compete in the Final Competitions for the Rome Scholarships of 1928.

ARCHITECTURE.

(Rome Scholarship and R.I.B.A. Henry Jarvis Studentship.)

T. M. Ashford (Birmingham School of Architecture; Architectural Association).
S. G. Chaplin (New Zealand; London University).
E. F. Davies (Liverpool University).
R. F. Jordan (Birmingham School of Architecture; Architectural Association).
A. C. Light (London University).
J. T. Lloyd (London University).
P. A. Wailes (London University).

Two candidates in the Final Competition of 1927 were granted exemption from the Preliminary Competition and are admitted direct to the Final Competition of 1928, viz :—

M. S. Smith (Sydney School of Architecture; London University).
J. B. Wride (Cardiff Technical College).

PAINTING.

Robin G. Guthrie (Slade School).
Alan E. Sorrell (Southend Municipal School of Art; Royal College of Art).

SCULPTURE.

Cecil Brown (Wolverhampton School of Art; Royal College of Art).

ENGRAVING.

Eric S. Jones (Camberwell School of Arts and Crafts; Royal College of Art).
S. R. Shepherd (Harrow School of Art; Royal College of Art).

The works submitted in the Preliminary Competitions are being exhibited in the Imperial Gallery of Art, Imperial Institute (East Entrance), South Kensington, until February 26.

Faraday Medal.

The Council of the Institution of Electrical Engineers have made the seventh award of the Faraday Medal to Professor J. A. Fleming, M.A., D.Sc., F.R.S., hon. member of the Institution

MR. GILBERT H. JENKINS, F.R.I.B.A. (President), occupied the chair at a meeting of the Architectural Association, at 35, Bedford-square, W.C.1, on Monday evening.

Entrance Fees and Subscriptions.—After the minutes of the previous meeting had been approved, the following amendment to By-law 17 was moved by the PRESIDENT, and carried. (The amendment is shown in italics.):—

"(17) The Entrance Fee of each Member shall be two guineas, *except that Members of the Royal Institute of British Architects or of its allied Societies for the time being shall not be called upon to pay any Entrance Fee.* The annual subscription of Members resident not more than 50 miles from Charing Cross shall be two guineas per annum, and of Members resident more than 50 miles from Charing Cross, one guinea per annum; but each Member who was a Member of the Architectural Association prior to January 1st, 1891, shall pay an annual subscription of one guinea. All students in the Schools must be Members of the Association."

New Members.—Eight nominations for membership were announced, and the following new members elected:—

Mr. F. L. A. Pusey.	Mr. C. C. Dent.
Miss M. C. Challen.	Mr. C. H. Crawford.
Mr. R. M. Butler.	Mr. T. W. Yue.
Mr. A. Laurence.	Mr. K. Ram Sinh.

Mr. Victor Wilkins was reinstated to the membership.

Architectural Books.

Mr. ROBERT ATKINSON, F.R.I.B.A., then gave an address on architectural books, and exhibited a large number of such works dating back to the fifteenth century, which he had collected. Old architectural books, he said, were certainly neglected, but the best of them could often be bought for the value of their binding alone. Often they also had the signature of bygone architects on the flyleaf, and sometimes the bookplate of a more affluent patron. Generally architects did not seem to be in a position to spend much on books, and that this had always been the case from the lists of subscribers printed in some of the old books; on one such list, filling four pages, he had discovered the names of only four architects. But books were always worth acquiring. They were bottled brains, ideas preserved for posterity. They varied according to the brains of the author; some were vapid, others full of words: some were cold and concise, others stimulative. Many authors rushed into print, but few had any permanency. Architectural books could generally be divided into two classes, namely, text books and books of illustrations. Most old authors were bubbling over with something to say, and said it with verbosity; but it seemed most modern authors had nothing to say, and said it with photographs. The only part that seemed to stick was common-sense; history could not vary—it was fast; construction varied daily—but was soon out of date; common-sense varied daily—but was never out of date. Most books contained a bit of each, but common-sense was usually left to the reader. It was curious that great architects seldom wrote books; Perruzzi, Mansart, Gabriel, Wren, Inigo Jones, Norman Shaw, Webb, Lutyens, Scott had not written books; others usually sang their praises for them. A book on architecture was either for the good of the profession or for the good of the author; books for the good of everybody were legion, but were marred by the fact that all authors were not writers, or even the best men for the particular work.

The dilettanti of the 16th century were very prolific in their output of works on the orders, with dissertations on sites and smells and war-like instruments. The books were printed with beautiful type and woodcuts, and they all repeated the same arguments and had a strong family likeness. The architects and joiners of the 18th century—such as Batty Langley and Pain—were very prolific in books on architecture, as also were the archæologists of the 19th century—such as Stewart and Revett, the Society of Dilettanti, Taylor, Penrose, Barboult and Le Roy. In the 17th century the French publishers carried the books of Blondel, Joubert and others to the highest possible level of book production.

In the middle of the 19th century there was a great output of purely historical works by Fergusson, Gwilt, Britton, and others, many of them due to the Gothic Revival.

The wood-cut illustrations of the 16th and early 17th centuries were replaced by copper plates, at first simple but afterwards developed, and in the 18th century simplified by Blondel's and Chambers's and Gibbs's correct delineation of objects and cast shadows, to a marvellous appreciation of rendered shadows. The late 18th century saw mezzotints applied to illustrations, and finally there was a move back to pure line in the classical revival. Then lithography had a beginning and produced bad paper and worse illustrations, with the exception of purely artistic books, such as Wyld's "Paris," Roberts's "Holy Land," Lewis's "Spain," Wicke's "Towers and Spires," etc. Lithography, properly applied, came into its own in colour books, but was not a sufficiently accurate medium for architectural drawings. Line blocks were used at the latter end of the 19th century, when Fergusson, Gwilt, and others, produced books, and were defective in many ways. Finally, process blocks from photographs produced the deluge of Belcher, Gotch and Saunders, and thousands of other books. They were useful, cheap, and responsible for the ill-digested architecture of the '80's, '90's and 1900's.

In modern works there was a renewal of the argumentative book, which was all to the good and covered new ground in all kinds of constructional thought. Books on architecture had their own character just like human beings: some were anæmic, others ponderous; some were padded out; some were full of rare meats, others bloated beyond belief; some were smug and learned, others bleated for a place; some were written by amateurs with little knowledge, others by practical men who sneered at learning.

There were few architectural books published in England before 1600. There were John Shute's "Treatise on Architecture" in 1563, followed by Serlio in 1611; Inigo Jones filled the gap. No doubt copies of Serlio and others were the books in use at the time. Italians, introduced by Henry VIII, were sculptors, and left little traces on architecture. Elizabethan architecture was largely influenced by Flemish and Dutch architecture, due to the importation of Dutch books on the subject. In the latter part of the 17th century many new architectural books were published, but they were rather English editions of foreign works. The 18th century opened a flood of architectural books, the earlier of which were copies of foreign works, such as Palladio and Vignola, Pozzio's "Perspective," and a book called "Parrallel" had a great run through several editions. At this time one saw the beginning of architectural books by quacks, all with expressive titles, such as "The Mirror of Architecture," "The Art of Land Building," "Magnum in Parvo," "The Marrow of Architecture," etc. Side by side with these works were the wonderful works of Campbell ("Vitruvius Britannicus"), and charming and useful views of executed buildings showing that hitherto the architects had produced fine works with next to no reference. Batty Langley was very busy; he was probably a teacher of mathematics or a drawing-master. His books were really good and useful, often a rehash of Vignola and other books. These included: "Practical Geometry" (1726); "Gardening" (1728); "Sure Guide to Builders" (1729); "Young Builders' Rudiments" (1734), "Ancient Masonry" (1736); "The Builders' Compleat Assistant" (1738); "The Builders' Jewel" (1741); "The Builders' Treasury" (1745); "The Builders' Bench Mate" (1746); "Gothic Improved" (1747); "London Prices" (1748); then he faded away after twenty-five years of very hard work. The middle of the century saw the publication of books by architects on their own executed works, and several useful books by Chambers, Burlington, Paine, Woolfe, and Gandon, and Adams. About this time several practical works were published, such as Swan's "Treasury of Staircases," and many more of the "complete builder" type, and a beginning was made on the publication of the great works on Classical antiquites, some of which were destined to change completely the architectural outlook of the early 19th century. Soane appeared towards the end of the century, doing, as he supposed, Greek architecture in all its purity. It was very original and quite modern even to-day; in fact, if the Bank of England were cleaned up so that it appeared as if it were a new building it would probably have all the appearance of one of the latest American banks. Several works were also produced by designers rather than architects, most of them beautifully bound and in very good taste. But before the advent of the full neo-classic of the 19th century there set in, late in the 18th century, a curious phase of stucco Palladian, and Regent's Park Roman villas were thus reflected in the works beginning with "Rural Architecture" (1785) and "Views of Cottages" (1795). Also one observed the beginning of an awakened interest in Gothic architecture, on which several books were published.

Proposing a vote of thanks to the lecturer, Mr. RUDOLPH DIRCKS (Librarian of the Royal Institute of British Architects) said it was the best address he had ever heard on architectural books.

The motion was seconded by Mr. HOPE BAGENAL.

Oxford Amenities.

A plan for the improvement of the southern approach to Oxford is one of the first matters to receive attention from the new Preservation Trust, and a report made by Mr. A. S. G. Butler, F.R.I.B.A., who was consulted by an informal committee of representative citizens, is now receiving consideration. The report submitted by the architect, which is accompanied by a drawing and sketch-map, sets out a plan by which the very beautiful south view of Christ Church, made visible from St. Aldates by a recent demolition of property, shall be permanently retained.

Consideration is also given to a proposal by the city engineer to recess St. Aldates on its east side in a gentle curve on the new building line and build a low two or three-storied continuous flat quadrant, with a cloistered pavement, having shops below and flats above.

The architect describes this as an excellent scheme, which would do much to relieve the pressure of traffic just at a point of main entrance into the city. The architect also urges that the line of the boundary between Christ Church and the city land should be kept as low and invisible as possible.

PRESERVATION OF ST. PAUL'S CATHEDRAL

SIR,—Some of your readers may wonder why Mr. Harvey meets my assertion that the construction shown upon his diagram does not exist in St. Paul's Cathedral by all this circumlocution and contradictory explanation, instead of by a plan to scale with section line marked, from which anyone could see at a glance the rights of the matter. Why miss this golden opportunity of proving my true character instead of merely giving his opinion about it? Why refer me to the 1921-25 Commission for calculations of his own scheme? Why does he not give a plain and direct answer to the vital questions I have put?

I submit that Mr. Harvey's diagram is neither the rough freehand sketch which he claimed in his last letter, cannot be taken seriously, and from which an architectural drawing to scale cannot be made, nor is it the accurate technical, geometrical drawing which should have been taken seriously as he stated in his letter December 16, 1927. In my opinion he intended it to be a simple diagram capable of being understood by the ordinary reader of a newspaper (as I read it in the first instance), to show the general public what according to him is the dangerous state of St. Paul's. His theory is based on the construction appearing on the diagram and the extent to which he believes the inner drum stands out over the void.

I enclose a cutting of an article which he contributed to the *Morning Post*, December 29, 1926, headed in large type "Why St. Paul's is in Danger," in which the diagram is used for this purpose. To avoid any further charges of misrepresentation I hope you may be able to insert it facsimile. The illustrations in his book are larger and better prints, and when his figure 18 is magnified there is no difficulty in checking the dimensions or the extent the inner drum "stands out" according to him, or drawing his diagram as an ordinary section to scale.

Having done this, I find that the lower part of the diagram up to the level at which the circular walls commence and the upper part above the floor of the peristyle are drawn correctly as a tangential section as near as makes no matter, on the line W2, H2 on my diagram Section B, Figure 4B. The part between this floor, however, and the start of the circular walls off the pier is not correct in the following respects :—

(1) The outer drum is shown in the position in which the inner drum actually stands in the building, in relation to the front face of the pier, and is therefore 7 ft. in front of its true position on this section line.

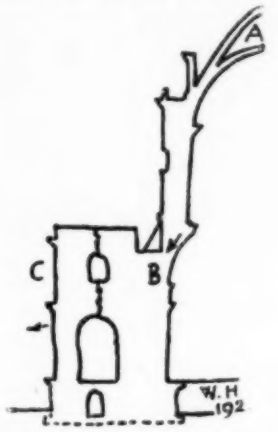
(2) The inner drum is shown standing out 9 ft. 6 in. on the centre line of the pendentive, instead of 2 ft. 5 in. which it actually does or could do unless the diameter of the inner drum at the level of the top of the seat in the Whispering Gallery was 98 ft. instead of 112 ft. which it actually measures. Consequently the inner drum, according to this diagram, stands out 5 ft. at the crown of the great arches over the keystone instead of setting back 2 ft. behind the face as in the building.

(3) On this section line the upper part of the pier is as shown on my diagram Section B, Figure 3B. It is not possible to show the triangular buttress, as on his diagram, on any section through the pier, because it does not stand on the pier but over the aisle at the side of the pier.

The accompanying plan of drums at level of Whispering Gallery superimposed on plan of piers and bastions below makes this clear. It also gives the dimensions required to check my statements. It makes no material difference for the purpose for which this diagram has been used whether the section be drawn on a radial or tangential line. Moreover the difference in projection between such sections on the centre line of the pendentive is only some four inches, which would be imperceptible on small illustrations. It is not a case here of splitting hairs but of "several feet."

The position of the outer drum relative to the face of the wall is a datum from which the rest of the construction can be ascertained. This is the fallacy on which his theory is based. Copies of Mr. Poley's standard work on St. Paul's are now reaching subscribers, and those interested can compare these diagrams with the plans of two entirely disinterested witnesses. Mr. Harvey illustrates sections by Mr. Chatterton in his book and admits they are correct.

I cannot agree with his statement that Sir Christopher Wren purposely concentrated the load of the domes at the inner corner of the pier to minimise outward rocking of the piers under oblique arch thrusts, nor can I find any evidence in the building to support it. This seems to me yet another fallacy and a most remarkable reading of Sir Christopher Wren's mind, and his object in doing as described by Mr. Harvey would surely be a revelation to Sir Christopher Wren and will greatly interest your readers. It seems to me a discovery as original and new as his previous "discovery" (announced some time ago) that the "arch never sleeps," which was ancient and well known, and I believe is generally accepted as one reason why the arch is seldom found in Hindoo architecture.



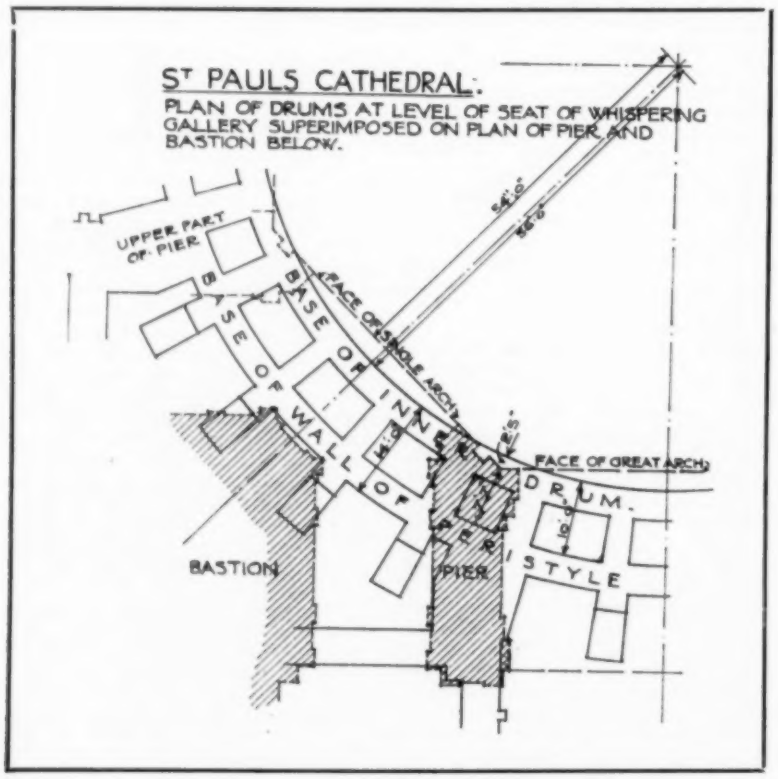
Mr. Harvey's "Section on the Line of one of the Great Piers."

The four great coffered arches (as can be seen from Mr. Poley's cross section) are semicircular vaults 40 ft. span which spring from the sides of the piers at a height of about 65 ft. from the church floor. Their weight and such load as they support is therefore distributed along the sides of the piers for a length of some 26 ft. and is not concentrated on the corner. The four lower single arches at the sides have a span of some 28 ft. and spring from the opposite corner of the pier at a height of about 50 ft. above church floor. They carry very little load and bring little on to the pier beyond their own weight, which is not considerable. They act mainly as struts between the piers at the front. To that extent such weight as reaches the piers is beneficial rather than otherwise.

The four upper segmental arches are also 28 ft. span. They spring about 76 ft. above the church floor just below "platform" level and abut against some of the most solid construction to be found in the dome area. Their load also reaches the pier at the opposite corner to that of the great arches, and their thrust is mainly dispersed in the filling of the haunches of the great arches and in the solid construction of the "platform" which at 80 ft. above church floor forms the foundation on which the circular walls are built with proper footings, spread and inverted arches. As usual, Mr. Harvey merely contradicts and does not refer to any features of the building to disprove points on which he disagrees or to justify his opinions.

It is easy to trace the construction described on many published illustrations. For instance, on the interior views of St. Paul's Cathedral in Birch's "London Churches," particularly the view of the north transept, it can be seen that the ornamental mouldings of the side arches continued on the faces of the piers, merely give the appearance of eight great arches. Although the mouldings have a fairly wide bed, they cannot concentrate any load on the corner of the pier as Mr. Harvey appears to think.

The greater part of the consolidation and settlement found in the dome area to-day arose before the arches were built. The increase afterwards is proportionately very much less and is mainly accounted for in the superstructure. The increase of settlement in the lower part is very slight, although the weight subsequently placed above the level at which adjustments were made and above the great arches is approximately 32,100 tons. In my opinion this, with a comparison of the


ST PAULS CATHEDRAL.
PLAN OF DRUMS AT LEVEL OF SEAT OF WHISPERING GALLERY SUPERIMPOSED ON PLAN OF PIER AND BASTION BELOW.
UPPER PART OF PIER
BASE OF INNER DRUM
SEAT OF WHISPERING GALLERY
FACE OF WALL OF PERISTYLE
FACE OF GREAT ARCH
DRUM.
PIER
PERISTYLE
BASTION

weight of the building, course by course from church floor to the Cross, in conjunction with the defects observable at the several levels, disproves Mr. Harvey's theory of the effect of arch action in the building.

In considering his theory, it should be borne in mind that arch action in a straight wall which has ends, and in which the thrusts are to some extent cumulative, is an entirely different problem from that of a circular wall, which has no ends and in which the thrusts tend to neutralise one another.

Great works, like great men, are magnetic. Their virtues and their faults are two poles to which their critics are attracted and adhere, and few can steer an impartial and even course between them. Mr. Harvey is so definitely and firmly attracted to the positive pole that he cannot tear himself away or bring himself to admit even that a negative pole exists.

The Pantheon had its Patte, an architect and prolific writer on architectural subjects, who attributed the defects in its piers to faults in Soufflot's design and foretold the collapse of the dome in consequence. It had its Rondolet to make a correct diagnosis and prescribe and effect a permanent cure, and its Gauthey, to criticise and expose the fallacies of Patte's theories.

Old St. Paul's, as Harrison Ainsworth's story goes, had its Solomon Eagle to foretell its downfall and by his obsessions to cause its destruction. St. Paul's Cathedral has its Harvey, who, if his fantastic cone was ever attempted, would be both its Patte and its Solomon Eagle. It has its 1921-25 Commission and its Cathedral surveyors and engineers. The temple of Artemis at Ephesus had its Herostratus, who achieved his object in spite of the decree of the Ephesians.

I submit that, from the first, Mr. Harvey approached St. Paul's Cathedral in the wrong attitude of mind. According to him he went there to measure and survey in 1921-24 an outstanding example to illustrate his new science of conservation which he was then investigating and developing.

The words of Sir Christopher Wren, quoted by Mr. Somers Clarke in an article on St. Paul's in September, 1907, were graven on Mr. Harvey's mind like the word Calais on Mary's heart. Mr. Somers Clarke states "It was in preparing this second design that Wren decided 'to reconcile as near as possible the Gothic to a better manner of Architecture.'" It was nothing to Mr. Harvey that Mr. Somers Clarke shows that Sir Christopher Wren did not do so. To him these were Sir Christopher Wren's own words, and they became Mr. Harvey's Bible.

He went to St. Paul's expecting to find not only the mongrel building which he describes in his book—a Gothic Cathedral with an Inigo Jones-Wren-Roman manner, round-arched skin—but also instances of all the tenets of his new science. Can we wonder that he found them, or that to him every crack and every defect was confirmation "strong as Holy Writ" of his theories, and overwhelming evidence ignored by other observers, proofs of which enabled him to apprehend causes of danger? Could a specialist reveal his mentality more clearly? Empirical theories and vain imaginings of Sir Christopher Wren's thoughts and intentions seem to me worse than useless. They tend to confuse the facts and introduce unnecessary comp'ications into this sufficiently involved problem. In course of time they are apt to crystallise until a mass of very misleading tradition accumulates, and it is difficult to distinguish facts from fiction, which happens in most old buildings, and notably in St. Paul's.

We know more or less how Sir Christopher Wren designed and built both from St. Paul's and other buildings, but we do not know his thoughts. Mr. Harvey himself appears to have prejudiced his own mind by speculation about Sir Christopher Wren's mind, and to have taken many traditions as gospel. I submit that from first to last St. Paul's has been to him a specimen and a subject for research, which would furnish proofs of all arguments and statements in his book, including those on the incompentency of his professional colleagues in general, and Sir Christopher Wren and the Cathedral Surveyors in particular. This attitude of mind and the style which he adopts in this correspondence in his books and his criticism of the 1921-25 Commission, answer to the question whether he is a competent critic of St. Paul's Cathedral or not. He evidently thinks that where his specialities and St. Paul's are concerned, there can be only two views—his own, and the wrong one.

He appears to be both intolerant and inaccurate in his criticisms of the custodians, the Cathedral staff and the Members of the 1921-25 Commission and all their works. Although he knows that Greathead was the first to use grouting, and Mr. Mott learnt and developed it under him, and Sir Francis Fox gained his knowledge mainly from them, and applied the processes to Winchester and Lincoln Cathedrals, combined with metal reinforcement, and Mr. Harvey in turn learnt from them, he now appears to claim that he invented this combination, and that Mr. Mott has learnt from him the methods which he is using at St. Paul's and adopted them under pressure from Mr. Harvey.

Bricks were used extensively in Babylon, and also for facing the new large block of flats in Park-lane.

He points out in his book that when composing a design for improving the structural condition of a building, "larger aspects must be considered first, and modifications that may be necessary for the application of the scheme woven in later as questions of detail," and much more to the same effect.

Mr. Harvey must have known that a most careful survey of the Cathedral has been in progress for years, and was actually in hand by the Cathedral staff and the Commission in 1921-24, at the same time that he was measuring the Cathedral, and he was present when the dome was plumbed by Mr Macartney. He appears to hold that there is only one way of making a survey, his own, and the professor of the new science of conservation is alone entitled to make modifications of a general scheme and to settle details from time to time as his investigations progress. When this is done by the Commission he describes it as "patching their scheme."

When I treated his diagram as a sketch in the first instance, he claimed that it should have been treated seriously, as a clear architectural diagram. When I took it seriously later on, he (pastmaster as he is of forcible language) has difficulty in finding words sufficiently abusive to describe the "head and front of my offending."

I pointed out that re-coring was only another word for rebuilding the piers, because, for all practical purposes, it must amount to that in the end. He protests in his last letter at being classed with those who at least were not afraid to speak out and to call a spade a spade. He prefers to camouflage rebuilding the piers by the word "re-coring." He ignores the fact that those who have written on this subject made it clear that they did not propose to make a clean sweep of the piers, but while rebuilding the core, to preserve as much of Sir Christopher Wren's work as possible. But inasmuch as the architects who have expressed these opinions are not professors of the new science of conservation, their proposals, according to Mr. Harvey, must be as ridiculous as those of everyone else.

For over three years Mr. Harvey, an architect, has goaded and scourged the engineering members of the 1921-25 Commission. I am confident that every other architect would wish to dissociate himself from this and from Mr. Harvey's general style of writing and of his personalities. In my opinion they are in very bad taste even if confined to criticism of his professional colleagues, but his attempts to discredit eminent members of a kindred profession in this way, in the offensive terms which he has used, culminating in his letter of November 2, 1927, to *Truth* and the editorial comment on it, gave me the opportunity of making the protest which I have done in these letters. It seemed to me that Mr. Harvey had been trailing his coat for years, and that it was quite time somebody trod on it and let him feel the thrust of the goad which he had so unmercifully used.

While he has an unlimited command of censorious language for these purposes, he apparently can find no words to answer the questions about his comprehensive scheme of conservation, or the extent of the mutilation of St. Paul's which it would involve, nor to explain its true nature.

INQUISITIVE.

MEETINGS

FRIDAY, *February* 3.

Imperial Institute. Opening of Timber Exhibition. 11 a.m.

Northern Architectural Association. Annual Dinner. At Tilley's, Blackett-street.

Glasgow Architectural Craftsmen's Society. Discussion on "Roof Materials." 7.45 p.m.

Faculty of Architects and Surveyors. Annual Dinner. Hotel Metropole, W.C.2. 7 p.m.

MONDAY, *February* 6.

Surveyors' Institution. Mr. Leonard Crouch on "The Landlord and Tenant Act, 1927."

Institution of Electrical Engineers. Discussion on "Domestic Water Heating." 7 p.m.

Society of Engineers. Presidential Address by Mr. C. H. J. Clayton. At Burlington House, W.1. 6 p.m.

TUESDAY, *February* 7.

Institute of Builders. Capt. W. T. Creswell on "Building Contracts and Sub-Contracts." At the Architect's Rooms, St. Mary's Parsonage, Manchester. 6.30 p.m.

College of Estate Management. Mr. G. Mould on "The Landlord and Tenant Bill." 5.30 p.m.

WEDNESDAY, *February* 8.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher on "The Mediæval Period: Parapets, Ornament, Fittings." 6 p.m.

Royal Society of Arts. Mr. H. D. Wilkinson on "Theatre Lighting." 8 p.m.

Liverpool Architectural Society. Mr. A. Owen on "Impressions of New York and its Buildings."

Leeds and West Yorkshire Architectural Society. Mr. R. H. Mattocks on "Parks and the Park System in the Town Plan." At 62, Woodhouse-lane, Leeds. 6.30 p.m.

Edinburgh Architectural Association. Mr. A. O. Curle on "Prehistoric Constructions of Scotland." 8 p.m.

THURSDAY, *February* 9.

Essex Society of Architects. General Meeting. At Cannon's Restaurant, Chelmsford. 3 p.m.

Design and Industries Association. Discussion on "Furnishing and Decoration of Hotels." 8.15 p.m.

Victoria and Albert Museum. Mr. W. B. Honey on "English Porcelain." 5.30 p.m.

Institution of Electrical Engineers. Annual Dinner. At Hotel Cecil, W.C. 2. 7.30 p.m.

Institution of Structural Engineers. Mr. H. Cane on "Epsom Grand Stand." 8 p.m.

Sheffield, South Yorkshire and District Society of Architects and Surveyors. Mr. T. Wilson on "Palace of Westminster." The University, Sheffield. 6 p.m.

FRIDAY, *February* 10.

Town-Planning Institute. Professor S. D. Adshead on "Town-Planning Education." 6 p.m.

Illuminating Engineering Society. Annual Dinner.

THE REPAIR OF ANCIENT BUILDINGS—V

By A. R. POWYS, A.R.I.B.A.

Masonry, Brickwork and Walls Generally.

THE aim in repairing old walls should be to make them sound and weather resisting, with the least possible alteration of form, texture and colour.

The chief causes of failure in masonry, brickwork and walls are:—(1) Want of regular attention. (2) Percolation of rain water. (3) Foundation defects. (4) Bad building up of materials. (5) Unbalanced or excessive thrusts. (6) Decay of materials. Two or more of these causes may be present together. Reference to the first and second causes has already been made in the headings, "The Survey of Ancient Buildings" and "The Disposal of Rain Water."

Foundation Defects.

Defects in foundations may be indicated by a drop or sag in horizontal lines, as in string courses and in the bed joints of the walling, or by walls which lean or are shattered or are cleanly cracked. These signs may, alternatively, indicate either bad building or the presence of excessive thrusts. Again, movements originally caused by foundation trouble may have ceased owing to equilibrium having been reached later.

It is then necessary before making any recommendations to make sure (1) of the cause of the defect, and (2) whether the cause is still active, for the treatment will vary accordingly. To find whether foundations are at fault a clear conception of the nature of the subsoil is needed, and a precise knowledge of the bed on which the wall stands. A peaty soil will compress, a plastic soil will both compress and squeeze outward, a loose sand will "run" if opportunity offers, and clay shrinks and expands as it becomes dry or is wet, and may show a tendency to slide laterally. To obtain direct information of the subsoil, holes should be bored at a proper distance from the wall to such depths as may be affected by the weight of the building or into such strata as may cause changes in it. To discover what the bottom immediately below a wall is like, holes should be dug at intervals so that it may be seen. The information so obtained should be immediately recorded, and the diagrams and notes preserved with the survey papers. This examination of suspected foundation trouble should be made as much to prove that no work is required as to discover what should be done, for alterations to foundations are liable to cause as many new defects as the old ones they cure.

The following conditions in buildings and subsoils may suggest factors which will influence a decision as regards foundation stability. If a subsoil is weak, but is also homogeneous, and if the conditions in it are unvaried, and if the weight of the building is evenly distributed, there can be little foundation trouble. The reverse is what causes foundations to go wrong. For instance, the weight of a tower causing greater compression of the bearing soil may result in a fracture between the tower and adjacent work. Again, inequality of depth is also a contributory cause. On a clay site the part of a house standing above a cellar may remain as built, while other walls resting on a bottom nearer the ground surface will move as the seasonal changes take place in it. A contributory cause of this movement is the fact that the concrete or walling of the lower foundation does not contract and expand in conformity with the movement of the soil on which the rest of the building stands. If the lower chamber is used for a furnace or boiler-house this condition may be aggravated by the tendency of the heat to dry out and contract the subsoil immediately adjoining. In such cases also fractures occur between the parts. Excavations for drains, heating chambers, sunk roads, or graves may remove lateral support at particular points, or cause sand to "run" or bring about changes in the water level. The subsoil may be patchy and fractures be caused by changes in its bearing capacity. In short, when the foundation bottom is not homogeneous, where foundation depths vary or where saturation changes with the seasons, foundation trouble is likely to be the cause of movement in walling.

To make certain that movement is still active, a prolonged survey is sometimes necessary, and in this case "tell-tales" are very helpful. With knowledge that movement has ceased much expense may be saved.

Treatment and Underpinning.

It will be seen that there are two conditions under which foundations are adequate. The one when they rest on a bed that cannot move, as rock, firm gravel, chalk, etc., the other when they are so spread on a homogeneous subsoil that no part of a building can move alone. Accordingly, the methods of securing defective foundations come under two heads. The one is to carry the foundations down to a rigid bottom; the other is to make inequalities negligible by spreading the foundations according to the bearing capacity of the subsoil and the weight that comes on it. The principle that no part of a building should rest on a firmer bottom than another underlies both methods. The object is not necessarily to prevent all movement, but to secure that the parts of a building cannot move separately. And even to this sound rule there are exceptions, for we find in old buildings a deliberately chosen compromise: namely, that parts of a building which differ in weight may be constructed independently, so that they may move separately. Thus, church towers are not always bonded into the adjacent walls. In the marshlands near the Wash this compromise is carried so far that towers sometimes stand several feet from the church. The provision of a movement joint is a common practice where additions are made to-day, and where such a joint exists in an old building it should very seldom be removed, and that only after careful thought. Indeed, this practice suggests rather that the provision of such a joint might occasionally prove useful in repair work, but because I know of no case where it has been made during such work, the suggestion should be considered with caution.

To put new foundations under an old building is to underpin it. It is a work needing experience and exceptional care, if movement in the walling above is to be avoided. To underpin a wall it is necessary to mine beneath it, and to do this even in small pieces at a time, which is the way the work is done, may be risky if the wall above is not solidly built. Therefore, before underpinning a wall, the base, if not the whole of the wall, must already be strong enough, or should be made strong enough through its whole thickness, to stand the operation, for a wall should take its own part in carrying its own weight across the holes as they are mined beneath it. This strengthening may be done by temporary props or by permanent repair, and these methods may be used independently or together. A technical matter in underpinning further bears on a decision to strengthen the base of a wall before the process is begun. The joint between the new foundation and the wall above has to be very tightly made. This is usually done by wedging up with slates, and wedging up tightly is made easy if the bottom of the wall is even. Such a surface, if it does not exist, can be provided when the base of the wall to be treated is strengthened.

During underpinning no opportunity should be missed to insert a damp-proof course if one does not exist.

When it is decided to underpin from a rigid bottom, the fact that expense may be spared by building piers at intervals to support lintols or arches by which the wall itself would be supported deserves consideration.

When it is decided to spread the foundations over a wide area, it is important to make the new foundation strong enough to distribute the weight evenly from side to side without breaking under its central load. In order to avoid excessive thickness and to save material the modern practice is to use ferro-concrete. On some sites it is found that opposing walls are slipping away from one another, and in such cases the foundation slabs should be directly and perhaps diagonally anchored together, and for this operation also ferro-concrete is used. In extreme cases it may be desirable to put the whole building on a raft of this material, and this can be laid piece by piece in long trenches passing right across the building and beneath the walls.

It is important in all underpinning works that the new foundation should be continuous, although it can only be laid in small sections at a time; therefore, provision is made when each section is laid for bonding those which will adjoin securely to it. No two adjoining sections are laid in succession. Time is allowed for each one to set hard before the next to it is put in.

Cases do occur where lateral movement alone is present when in the place of a widely spread foundation beneath the walls it is sufficient to put a frame of ferro-concrete round them. In such a case direct and cross "anchor beams" are almost invariably necessary to hold the frame-work stiff. Where lateral movement is on a large scale, as when the side of a clay hill on which the building stands is gradually moving down the slope, it is probably best to put the whole building on a strong raft of concrete, for then, although the building move with the subsoil, it will do so as a single unit, and the walls and arches will remain unbroken. Yet in such cases other means may be sufficient to prevent further movement of the subsoil, such as piling or sheet piling. But where piles are used it must be definitely found out that the process of driving them will not jar the building to its hurt.

In cases where foundations are at different levels and fractures have occurred at the points of change, it is probable that the only way to secure against continued movement is to take the whole of the remaining foundations down to the same level as the deepest. But this is an expensive operation, and it may be that to replace the fractures by the "movement joints" suggested above would be useful.

To underpin a part of a building only, as a rule introduces one or other of the conditions which have been described above as causes of fractures in walls. It is often tempting but seldom a wise undertaking. In fact, a blind faith in underpinning as a cure for most ills from which walls suffer is to be regarded with suspicion. Each case needs careful observation, sound diagnosis and the intelligent use of the appropriate remedial measures.

Our Cathedrals.

Sir Banister Fletcher, F.S.A., F.R.I.B.A., at the Central School of Arts and Crafts, gave a lecture on the evolution of English mediæval architecture as seen in the interior and exterior design of cathedrals and expressed in the arcades, doors and windows. The lecturer dealt with the transformation of windows on English cathedrals from the tiny, narrow, round-headed Norman window, which was but a slit in a wall of stone, to the spreading Gothic walls of glass, framed in strips of carved stone. All the delicate intricacy of traceried windows, such as we admired in the greatest of east windows in Gloucester Cathedral, or in the series at St. George's, Windsor, was, said the lecturer, the outcome of a gradual evolution which began in Norman times by the simple plan of placing two or more small Norman windows together under a protecting arch. The space between this arch and the little window heads was filled with a plain stone slab, and through this slab the masons saw possibilities of more light by piercing a central hole. Once begun, this plan of piercing was elaborated into trefoils and quatrefoils of additional openings.

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

"Architects and Decorators."

SIR,—The letter signed "Anglia" under the above heading in your issue of January 20th sums up admirably several important points in the recent debate between architects and decorators at the Incorporated Institute of British Decorators at Painters' Hall, but he suggests that "such plain speaking on both sides may widen the breach unless both parties are prepared to admit their errors."

The discussion referred to was the first that has ever taken place between Fellows of the two Institutes so far as I know, and so far from widening the breach, as suggested by your correspondent, the feelings between the two participants at the close were such that many architects expressed the hope that more such meetings and friendly discussions will be arranged to take place in the near future. In my view this can only do good, as, apart from anything else, it enables architects and decorators who are likely to come into business contact to get to know each other personally; but it also enables each party to see and understand the other man's point of view and appreciate some of his difficulties.

I do not agree that a "village house painter" may produce most satisfactory results from a few clearly drawn scale drawings and details. These can only give outline, not colour, nor artistic sense of feeling. Certainly the "village house painter," provided he has been trained as a decorative craftsman, can produce satisfactory results if directed by an architect who has specialised in interior decoration. Some architects are great artists, but really great decorative architects are comparatively few.

One form of solution suggested by your correspondent, viz., collaboration between practical and artistic architects, does not appear to me to help matters at all, as no architects employ the labour, and it is very doubtful if they could find the right men, even if they wanted to.

Many of the greatest architects of to-day, however, work in close collaboration with qualified decorators, whom they consult, and whose opinion they value, with most satisfactory results, as mentioned by Mr. Arthur J. Davis, F.R.I.B.A., at the debate.

Many of your readers may be interested to learn that our Institute is about to launch an entirely new scheme of education which should have far-reaching and beneficial effects, by the provision of a field of study at present outside the scope of University teaching.

Several of the principal universities have welcomed the proposal, and the Council have undertaken to endow a Lectureship in Decoration at London University. In return London University have agreed to include decoration as an optional subject in the course for the B.A. Degree, and also to establish a three-year course in decoration for the University Certificate.

The scheme will furnish a much-needed opportunity for 'varsity men who wish to become decorators by providing the means of studying the subject in which they ultimately intend to earn their living, and as decoration will be taught in conjunction with the existing architectural course, budding architects and decorators will get to know each other while students. This should also have the beneficial effect of creating a much better understanding between architects and decorators of the future.

GODFREY GILES,
President.
Incorporated Institute of British Decorators.

The Repair of Ancient Buildings.

SIR,—I have to thank Mr. Powys for his courteous reply to my letter. I am glad to learn that the Society for the Preservation of Ancient Buildings recommends architects who were trained with them and who are now in private practice for the carrying out of such work. I have never heard of H.M.O.W. doing so. There are several other points in Mr. Powys' articles I should like to make comments upon but it might be more convenient to do so after his series of articles is finished. They are certainly most valuable and instructive.

WILLIAM DAVIDSON.

SIR,—We must feel deeply indebted to Mr. A. R. Powys for his articles on "The Repair of Ancient Buildings," which are written in such an elucidatory manner. He puts before us what we may expect to find on examination of an ancient structure, from a cottage to a church, and gives the necessary information as to the mode of reparation in order to extend the endurance of the structure against the elements, which continually make war on the component parts.

Where the rainwater from eaves of a roof drips direct on to gravel or sand, a "washing up" takes place which does not look well, and therefore provision must be made to obviate this, which no doubt Mr. Powys has provided for in his specified items.

As regards water in the subsoil of a building, this would require great care to get rid of, especially in old buildings, in order to avoid any settlement, as a dry foundation is better than a damp one "all the world over."

ANDREW SOUTH.

The New Orders of the R.I.B.A.

SIR,—I must protest most vigorously against the renewed proposals of the R.I.B.A. to require the quantities of all their English members to be prepared on the principles of the London quantity surveyors. The whole system of London quantity surveying is too theoretical, and not practical enough for the north-country builders. Tenders under that system would be too high for work to be carried out by private investors, and in the case of buildings erected by public subscriptions one-half of the satisfaction of a gift must be taken away when the donor finds that his neighbour gets no benefit from it—his tender being so much higher than those from south-country builders that it is quite impossible to employ him.

W. HOFFMAN WOOD.

Leeds.

Death Watch Beetle.

SIR,—Dr. Gahan, in his letter published in your issue of January 13, questions the identification of the beetles to which I referred in my letter of November 29 last. The insects found were compared with an illustration and description in a book on beetles which was considered perfectly reliable. In the light of the later pamphlet written by Dr. Gahan with its excellent photographs and descriptions, the book is obviously inaccurate and confuses the two species. To make sure, I obtained further specimens of the beetle and its larva, and the Department of Entomology at South Kensington has very kindly examined them for me and identified them as the common furniture beetle (Anobium punctatum), and not the death watch beetle (Xestobium tessellatum).

I regret that the unreliability of my book of reference led to an error in my letter. The practical point, of perhaps greater interest to me as an architect, is not, however, affected by the error in identification, viz., that sapwood is attacked by the beetle in preference to sound heartwood.

HERBERT KENCHINGTON.

"The Young Architect's Ideas."

SIR,—The seven paragraphs of deprecating cynicism which Mr. J. E. Reid grouped together in your issue of December 30 under the title of "The Young Architect's Ideas," call for a reply, not because the young architect of to-day is in danger of being influenced by them, but lest your lay readers and prospective clients should gain the impression that Mr. Reid is expressing the attitude adopted towards art by the generality of members of the architectural profession.

Mr. Reid fails to see that times have changed since the nineteenth century. Even industrial clients no longer wish to spend 100 per cent. of their money on the utility side of their buildings, or they would go to engineers and not to architects. There is a gradual desire for improvement all round. We have the Underground Company spending money on most artistic posters, not only to give the public information but to give it well. An American firm of chewing-gum manufacturers has recently built a factory in north London which reflects great credit on its wisdom in entrusting the work to an architect who could design not only an efficient factory but also a notable contribution to the architecture of the day.

Clients are realising that the more limited their expenditure the more necessary it is to employ an architect who can make the fullest use of the means placed at his disposal and who has the artistic knowledge necessary to overcome the increased difficulty of the proper architectural treatment of the building.

Mr. Reid's despondent observations are therefore somewhat out of date, but it would be interesting to know on what grounds he sees nothing for the young architect but a future of inescapable retrogression and disillusionment when not only is there an absence of any sign of decadence in art, but when, on the contrary, every indication is present, to anyone who observes the conditions of the day in their proper relation to history, that the twentieth century marks the beginning of a renaissance of the arts which will surprise even the most optimistic.

CRITIC.

THE INCORPORATED ASSOCIATION OF ARCHITECTS & SURVEYORS

The new President of the Incorporated Association of Architects and Surveyors, Mr. V. A. Lawson, and his wife held a reception and "at home" at the Association premises, 1, Wilbraham-place, Belgravia, on Tuesday evening last. The President, after receiving his guests, numbering about 100, gave a short address, in the course of which he said the Association had undoubtedly met a want in the allied professions, which was proved by the phenomenal growth of its membership. The Association was out to help the younger members in the architectural and surveying professions, and was co-operating with other bodies and educational centres in order that its students might be trained on sound and progressive lines.

Major Tasker, M.P., the chairman of the London County Council Building Acts Committee, and senior vice-president of the Association, having welcomed the new President, said the past year had been a memorable time in the growth and expansion of the Association; there was big work in front of them, but they would continue to work as a team as they had done in the past.

Alderman Culpin, L.C.C., M.T.P.I., F.I.A.A., said he had much pleasure in seconding Major Tasker's welcome to the president. The Association had set out with a definite aim, and had been successful in filling a gap that many of the older bodies had failed to fill; its tentacles had, in fact, spread to all parts of the British Empire. He had also found a very friendly and a real helpful feeling permeating through the membership of the Association.

During the evening an excellent musical programme was given. The library was converted into a buffet, and at the conclusion of the musical programme the Council Chamber was cleared and a pleasant evening terminated with dancing.

"THE BUILDER" DEBATE

Pupilage v. School Training.

SIR,—There is a very natural desire to evolve the best training possible for an architect, and it should be framed so as to be of distinct benefit to those practising architects into whose offices the student must find his way before he can be said to have prepared himself fully for his future career. The difficulty about an architect's training is not unlike that which appears in the provision of a working system of religion, for we are all so variously constituted that what suits one temperament may visibly fail for another. There are all sorts of variations between the dreamer and idealist and the definitely practical-minded student, and one is inclined to doubt whether the proper outlook for those entering the profession is ever explained as fully as it ought to be, though one may perhaps assume that there are few, if any, who are foolish enough to enter the profession with the main object of making money.

The debate as to whether the old pupilage system or the modern scholastic course is the better way would be a futile one, unless it led to some better realisation of the needs of a student. I can well imagine that a youth who has entered an office in the humblest possible way and gradually learnt to make himself really useful without any special training in the schools might be a much more valuable asset in an architect's office after some four or five years than one who enters it after a scholastic training only. There is always the risk that the student coming into an office fresh from the schools may find that his practical usefulness is much less than he expects. In the actual presence of everyday work in a busy office the tyro learns much and finds out the things which really matter in actual practice. It would almost seem that practical work in an office and theoretical work in a school should go hand-in-hand. But the chief value in the pupilage system, of course, was the chance and opportunity of catching hold of that spirit which informs the work of the architect in whose office he is placed. It is impossible to be in the employ of a first-rate artist without finding real opportunities of catching something of the spirit of his work. There may not be many offices in which the ideal which governs it is likely to do much for the student and where so few offices of this kind exist the system of pupilage is lowered in value.

R. WISE.

SIR,—It seems that both these systems are useless other than for producing "plan-factory operatives." There are thousands of architects capable of designing any type of building from a world-centre to a home-centre; few of them can dispose of their plans in any quantity. Yet builders and estate agents—men with little or no architectural training—can sell their designs in thousands, whatever their ugliness.

It seems that both systems of architectural training should be scrapped in favour of some scheme whereby students might be taught up-to-date salesmanship side by side with plan-production. Failing this students might be compelled to serve for at least a year in the office of a builder or estate agent so as to learn business methods.

PROGRESSIVE.

Ancient Relics on Site of New Zoo.

The Trustees of the British Museum, who have acquired the bidding rights for objects of antiquarian interest on the site of the new Zoo at Whitsnade, Beds, have appointed Mr. T. W. Bagshawe, hon. curator of the Luton and Dunstable Museums, their representative to supervise the excavation of any objects of interest which may be found while the sites for the animals' quarters are being dug. The district is thought to be rich in Roman and Stone Age relics, and as the work will occupy some 40 years, Mr. Bagshawe has before him almost a lifelong task.

DESIGN, CONSTRUCTION & REPAIR OF DWELLINGS

LAST year, it will be remembered, Parliament promoted and passed the Housing (Rural Workers) Act, 1926, the purpose of which was to enable financial assistance to be given by the Government and by County and District Councils towards the cost of the structural repair or reconditioning of dwellings in rural areas where the difficulty of securing sufficient new cottages has been especially great. *A propos* of this Act, the Ministry of Health has just issued a "Housing Manual on the Design, Construction and Repair of Dwellings," to which the Minister of Health contributes a Foreword, in the course of which he draws attention to the fact that in some cases, especially in rural areas, too little care has been taken to secure that the buildings erected were appropriate in design or in harmony with their surroundings. "In connection," he observes, "with the extensive work which I hope will be accomplished under the new Act in reconditioning existing buildings, I recognise that much injury to their beauty may result if the work is handled without proper care and skill. I have thought it desirable, therefore, to issue a short manual dealing with these and other aspects of the design, construction and repair of dwellings to which more attention in many cases should be given."

The Manual contains sixteen pages of text, divided into the following chapters:—I. Design Generally. (A) Buildings, (B) Reconditioning of Old Buildings. II. Accommodation and Planning. (A) New Houses, (B) Reconditioned Dwellings. III. Construction. IV. Site Planning and Roads. In addition, there are twenty-four pages of illustrations in line and half-tone showing some good examples of modern housing schemes, together with plans of houses in various groupings and some examples of good and bad lay-outs. An instance of the right method of repair of an old dilapidated thatched cottage is also illustrated. The literary matter is simply written and easily digested, and provides in brief compass much excellent advice on design, planning and reconditioning. We take the following characteristic extracts from the section on Reconditioning Old Buildings:—

While the adoption of designs in harmony with their surroundings is important as regards new buildings, this consideration becomes imperative in connection with alterations and additions to existing buildings. There will be found in all districts choice examples of cottage architecture, sometimes showing elaboration both in design and treatment, which would be very costly if carried out to-day. The careful preservation of these is of the utmost importance. To avoid disfigurement in all such cases the best advice should be taken before structural repairs are put in hand.

The majority of old cottages are, however, noticeably free from elaboration whether of plan or treatment. Their pleasing effects depend mainly on their simplicity, on the appropriateness of the materials used, on the good proportion of the necessary parts, and on variety in some few of the details. A study of almost any attractive village street will confirm this, and will show how an extensive simple background may be adequately relieved and adorned by an occasional prominent point showing a little more elaboration or decoration. A gable, porch, door canopy, bay window or chimney stack will here and there stand out as a note of emphasis; or even smaller details of finish revealing the fancy of the plumber, the mason or the joiner, may suffice to give the distinguishing touch.

Both sympathy and ingenuity are needed to enable the right choice to be made between alternative methods for bringing old dwellings sufficiently into accord with modern ideas of health and comfort, and to adopt those methods which will disfigure the existing cottage or destroy its proportions to the least possible extent.

Where for reasons of economy or on account of the difficulty of obtaining suitable labour or materials the use of the most appropriate material has to be abandoned, as in the case of thatch or stone slates for roofs, or ashlar for walls, it is of special importance to select as substitutes materials which will clash in colour or character as little as possible with those formerly used in the locality. As regards roof coverings one which can appropriately be used with the prevailing pitch should be selected.

Where thatch has decayed chiefly at the foot of the slopes, repairs can sometimes be effected by inserting along the eaves a few courses of tiles or slates. Where rendering or roughcasting a damp wall would destroy a beautiful brick or stone facing, the alternative of forming a dry interior lining may be considered. Underpinning, or the erection of a buttress, may restore adequate stability to bulging walls or fine old chimney stacks with less danger and cost than rebuilding would involve.

Where the enlargement of existing windows would be fatal to the scale, the insertion of new ones may be less injurious; where the raising of the roof would destroy the good proportion, perhaps the needed air space may be attained by raising the ceiling to the level of a collar beam, light and ventilation being secured at a more effective height through the gable walls or by means of a dormer. When replacing old or inserting new windows the original type should be followed as closely as possible. Few features are more characteristic of the style of the cottage than the glazing of the windows. The greatest care should be taken to maintain the original proportions of the square or pane. To replace the casement type by sash windows, or well proportioned panes by single large sheets of glass may completely destroy the character of the cottage.

Where the existing entrance door cannot be repaired one of similar design should be used. The change from a simple flush framed or ledged and boarded door to a modern stock example replete with moulded panels and glazing would be enough to ruin the appearance of many cottage fronts. The chief charm of the class of building depends on the way in which all the different parts harmonise into a pleasing whole, and may be destroyed by changes in what at first sight seem to be insignificant details.

Famous London Houses.

Since 1901 the London County Council has caused tablets to be attached to about 120 houses of historical interest. Before then the work was done by the Society of Arts. The histories of many of the houses have been published by the L.C.C. in cheap book form. The two latest books issued describe Gladstone's house at 11, Carlton House-terrace, G. F. Watts's house, at No. 6, Melbury-road, Kensington, and Whistler's house, at 96, Cheyne-walk, Chelsea.

Building Science Abstracts.

Volume II. of "Building Science Abstracts," prepared by the Department of Scientific and Industrial Research, and just issued, deals with the following subjects:—Materials in general: their properties and testing; Stone, mineral earths, clay and ceramics; Lime, plaster, and chemical compositions in general; Cement and concrete; Metal; Organic building materials; Paint and varnish; Elements of structures; Housing and domestic engineering; Specialised construction. The abstracts are compiled mainly from a "List of Periodicals and Key to Abbreviations," January, 1927, and purport to be fair summaries of the original literature, but no responsibility, it is stated, can be accepted by the building research station for the accuracy of authors' statements or for their opinions.

THE NEW FORM OF BUILDING CONTRACT

III.—A DETAILED CONSIDERATION—(*Continued*).

BY E. J. RIMMER, B.Sc., A.M.Inst.C.E., Barrister-at-Law.

WE have already considered under separate headings the provisions in this Contract relating to "Status of the Architect" and "Definition of Contract Works." In this issue we shall consider them in reference to "Delays" and "Certificates."

Delays.

Delays under a building contract may be said to arise from one of four causes:—

(*a*) Causes for which the contractor is responsible and over which he has control.

(*b*) Causes for which the contractor is not responsible and over which he has no control, but which are usual causes of delay and could therefore be reasonably anticipated by him.

(*c*) Causes of delay from the happenings of events which he cannot possibly anticipate and which are not usual.

(*d*) Causes for which the employer or his agents are solely responsible.

In the first category, we have bad organisation of the work, negligent inattention to the requirements of the architect and slackness in the purchase of material, etc.; in the second, we have all those delays which may arise from strikes, lock-outs, exceptionally bad weather, etc.; in the third we have acts of God, civil commotion, war, etc., and in the fourth, the failure of the employer to make up his mind what he requires to be done, and the dilatoriness of the architect in producing the necessary plans and instructions, or disputes with adjoining owners over boundary questions, etc.

The 1909 Form treated classes 2, 3 and 4 as entirely in the same category so far as the contractor's remedies were concerned, allowing him, if the architect thought fit, an extension of time but no compensation, but the new Form now treats each of the four classes in a different way.

For the first class, the contractor is not only responsible, but is liable for damages to the building owner in respect thereof.

For the second class, neither contractor nor employer get any relief from their obligations, except that the contractor obtains an extension of time, so that no penalties can be enforced for the period of the enforced delay.

For the third class, the contractor will obtain no relief until he can show that the works have been held up wholly or substantially for a period of three months, and in that event, he is entitled to go to the arbitrator and ask him to review the contract and to determine whether or not the contract shall be determined or continued, and, in either event, the terms and conditions of such determination or continuance.

In the event of the fourth class of delay, namely, the delays due to the act of neglect or default of employer or architect, or to actions or threatened actions against the employer in respect of the use of the site, or of statutory or other restrictions upon the execution of the work, the contractor, in addition to obtaining an extension of time, will be entitled to be paid any loss or damage which such delay entails.

This provision is, of course, entirely consistent with the contractor's ordinary common law contractual rights. A contract between two parties implies an obligation on the part of each not to do anything which would prevent or hinder the other party in carrying out his part of the contract, and there was nothing in the 1909 Form which barred a contractor making a claim for breach of such implied condition. At the same time, it is perhaps well that the new Form of Contract should express, in terms, the right of the contractor to be reimbursed his loss from acts of hindrance by the employer or his agents, as such expression in the body of the contract will probably result in the employer taking greater care to see that the contractor is not impeded.

The new Form of Contract gives a remedy to the building owner in the event of the contractor deliberately suspending the works, but this provision is not materially different from that contained in the 1909 Form.

Certificates.

The chief differences between the new and old Form in regard to interim payments are, firstly, the express provision that the contractor is to be entitled on interim certificates to be paid on the value of materials which he brings upon the ground, as well as executed work, provided that they are brought on at a time that is reasonable, and properly stored, and protected against the weather or other casualties; and secondly, that before making an interim certificate, the architect can request proof from the contractor that the contractor is not unreasonably withholding payment due to a nominated sub-contractor. Both these matters appear to be of some importance. The first, which is in favour of the contractor, will substantially reduce the cost to the contractor of financing the job, though, of course, the percentage of retention money is to be deducted from the value of goods as from the executed work, and should, therefore, give the employer the security that he requires.

The second matter gives to the architect a power which he has not got in such express terms under the 1909 Form, although, under that Form, an architect would be entitled to deduct from his certificate any monies which the employer had paid to a sub-contractor. The new Form, however, makes the position of the architect stronger, because it entitles him to hold up not merely the amount which the contractor owes to the sub-contractor, but the whole certificate, until monies due to the sub-contractor by the contractor have been paid.

The next change in the payments clause is that relating to the disposition of retention monies. The principle of retention monies being paid into a bank in the joint name of employer and contractor to earn interest for the contractor was first introduced into the housing contracts by agreement with the Ministry of Health. It is a principle to which there can really be no possible objection, provided that it does not cause irritation and annoyance to the employer. In order to prevent this the agreed Form has, therefore, very wisely limited the application of this rule to retention funds over £500, and instead of requiring the retention funds to be paid into the bank in instalments, requires them to be paid in one sum, when they have reached the limit provided by the contract. The retention fund is to act as security for the due completion of the works by the contractor, or, if the employer should default in making payments, then it is to be paid to the contractor in part security for the work that he has done.

The nature of the final certificate has now been put beyond question. It becomes truly a final certificate, a certificate of satisfaction by the architect of the work that he has seen done, or which by reasonable examination of the clerk of works, or the architect, could have been seen done. It does not, however, free the contractor from liability for defects or insufficiencies, brought about by his fraud, dishonesty, or fraudulent concealment, or by defects which a reasonable examination would not have disclosed, that is, latent defects.

Under the 1909 Form, the contractor had no security that the employer would not challenge the correctness of the works, although they had throughout been approved by the clerk of works, or even by the architect himself. Even after the final certificate if the employer could point to some discrepancy between the work so approved and the strict requirements of the contract, he would have had a remedy against the contractor, the Courts having held that inspection by the clerk of works or architect were entirely for the benefit of the employer and did not relieve the contractor of any of his obligations. The architects have, in the new Form, conceded to the contractors their rights of immunity from such proceedings, when once the final certificate has been given. This will make the examination of works in progress an essential service in the interests of the employer.

(*To be continued.*)

THE PRESERVATION OF RURAL ENGLAND

IN the first of a series of three lectures on "The Art of Building," at the Manchester University, Professor Adshead, under the chairmanship of Mr. Harry S. Fairhurst, dealt with "The Preservation of Rural England." The lecturer asked that a very clear distinction should be drawn between three ways of living to be seen in Britain to-day: the urban, the suburban, and the rural. There should, he thought, be no mixing of these three.

While he would preserve rural England by ensuring the healthy continuance of English country life, he recognised that there are some parts of the country which on account of their sheer beauty should be preserved even as museum pieces are preserved; and, because nothing shows the character of a piece of country more essentially than its roads, he would in these places eliminate the black "tar-macadam" road which the motorist loves. But as showing how difficult it is to do something positive in those matters, he pointed out that the char-à-bancs going from London to Southend tend now to leave the "arterial" roads constructed especially to carry them and take a course through the by-ways in order that the passengers may see the "country."

On this question of preserving specific areas of the country, he pointed out that motorists were contributing millions a year to the Road Fund, and that it would not be unreasonable if part of that fund were allocated to this task of buying land with the object of retaining its rural character. The Council for the Preservation of Rural England, he said, was working for the purpose of bringing that about. Suburbia, he said, in any subdivision of the land, was going to have a very important meaning. But suburbia must preserve its own character. It should not be forgotten that it had, so to speak, no background. It did not grow out of the land like a village. The suburban architect was in danger of forgetting, on the one hand, that he was not in the town, and on the other, of assuming a rusticity unsuited to surroundings and to the urban habits of the community. He suggested that the artificiality of a park was an appropriate aim of suburban building.

PROBATIONERSHIP OF THE R.I.B.A.

Regarding this Examination, we have received the following communication from the R.I.B.A.:—A.—*List of Subjects required.*—Attention is drawn to the fact that the Council of the R.I.B.A. have decided that Physics and Chemistry shall be included in the list of subjects as one of the alternative subjects. The following are the subjects now required:—English Composition; Elementary Mathematics (Arithmetic, Algebra, Geometry); Mechanics or Physics or Higher Mathematics, or Chemistry or Physics and Chemistry; History or Geography; one Language other than English. B.—*Drawings required.*—The Council have decided that after December 31, 1928, candidates must produce drawings showing that they possess an elementary knowledge of *drawing from the solid* in addition to freehand drawing.

ILLUSTRATIONS

New Premises, Leek.

We illustrate this week the design for new premises for Messrs. Wardle and Davenport at Leek, Staffordshire. Messrs. Longden and Venables, F. and L.R.I.B.A., are the architects.

The Massey Memorial, New Zealand.

This memorial is to perpetuate the memory of the late Mr. Massey. It is to be erected on Point Halswell, a site of much natural beauty, 120 ft. above sea-level, and will be built of white marble. The design is by Mr. S. Hurst Seager, C.B.E., F.R.I.B.A., who will act as consulting and supervising architect, Messrs. Gummer and Ford having been appointed as associated architects to complete the working drawings, specifications, etc. Mr. T. A. Shurrock, sculptor, of Christchurch, is recommended to be commissioned to carve in marble the medallion portrait of Mr. Massey, and Mr. F. G. Gurnsey to execute under the direction of the architects all the inscriptions and decorative features.

Churton Cottage, Bramley, Guildford, Surrey.

This house stands on an open plot of land adjoining the Bramley golf links and, in order to secure the best views and as much sun as possible, it is placed diagonally on the site. On the ground floor there is one large living room, facing south, opening into a loggia, which forms a covered way to the garage. The kitchen, separated from the living room by a large pantry, is placed to the north. On the first floor are four bedrooms and bathroom. The house is built with cavity walls, faced with local hand-made red bricks and roofed with dark hand-made tiles.

The architect was Mr. G. R. Gilbertson Topham, A.R.I.B.A., and the contractors Messrs. Goddard and Sons, of Dorking.

Alton Union Infirmary.

The building of a new infirmary at Alton was first contemplated in 1913 and a number of architects were then invited to submit designs in competition for its erection. The design submitted by Mr. J. Arthur Smith, F.R.I.B.A., was selected, but owing to the war it was not until 1925 that the matter was again seriously considered. In the meantime the position of affairs had somewhat altered and developed, necessitating the remodelling of the original plans to meet the more recent requirements of the Ministry of Health and local circumstances.

The present building is planned to accommodate 63 patients—40 women (including three maternity cases) and 23 men. All wards, except maternity, are placed on the ground floor.

The nurses' accommodation provides a large general sitting-room and head nurses' room, both with bay windows, and six bedrooms, with an additional spare room for sickness. Each bedroom contains a double "built in" hanging and shelf cupboard. The night nurses' bedroom is separate from the other rooms to ensure quiet in the day-time. Fire-escape balconies are provided at either end of the first floor, approached from the main corridor.

The building is warmed by a low-pressure system of hot water, which serves radiators in all wards and rooms and corridors; the radiators have fresh-air ventilating ducts. The radiators in wards and day rooms are supplemented by open fireplaces. The water supply to the infirmary is softened by a system connected to the softening plant in the laundry boiler-house, which supplements the rain-water storage in case of shortage. The lighting throughout is by electricity from the company's supply.

A new mortuary has been erected in a detached building at the back of the site near the railway and has been equipped for post-mortems. Part of the mortuary building has been designed and fitted as a small chapel or "viewing chamber," and this part of the building has been decorated and fitted with lead-glazed windows, in keeping with its purpose.

The general contractors were Messrs. Mussellwhite and Son, of Basingstoke. The whole of the facing bricks and roofing tiles are from the Daneshill brick and tile works, and the stone for the entrance doorway is Portland. The sub-contractors were Messrs. Cash and Co., of Westminster, for heating, the Crittall Company for casements to operating room and covered way, Macfarlane, of Glasgow, for balconies and verandahs, and T. M. Kingdon and Co., of Alton and Basingstoke, for electric light and bells. The internal doors were supplied by Messrs. W. Hitchins and Co., and the stoves by Messrs. Bratt Colbran. The sanitary fittings are by Adamsez.

The heating and ventilating were under the direction of Mr. E. Lancaster Burne, M.I.M.E., A.M.Inst.C.E., consulting engineer, of Westminster. Mr. S. J. Bryant, F.S.I., of Basingstoke, was the quantity surveyor, and Mr. J. Arthur Smith, F.R.I.B.A., of Basingstoke, was the architect. Mr. Merrett acted as clerk of works.

Wimbledon Town Hall and Municipal Buildings.

We illustrate this week the second premiated design in this competition, by Messrs. D. H. McMorran and A. Bailey. The winning design, by Messrs. Bradshaw Gass and Hope, FF.R.I.B.A., was given in our issue for January 13. Mr. H. V. Ashley, F.R.I.B.A., was the assessor.

R.I.B.A. Final Examination. Problem in Design No. XCVI (a).

This design for "A Small Housing Scheme" has been recently approved by the Testimonies of Study Examiners. It was prepared by Mr. C. G. Mant, an evening student at the Northern Polytechnic School of Architecture. The Board of Architectural Education wish it to be known that these Testimonies of Study are published for the guidance of students, not as perfect solutions of the subjects, but to show the general standard of Testimonies of Study approved by the R.I.B.A.

SOCIETIES AND INSTITUTIONS

THE COLLEGE OF ESTATE MANAGEMENT.

Town Planning.

In a lecture on this subject delivered at the College of Estate Management, Lincoln's Inn Fields, W.C.2, on January 24, Mr. Longstreth Thompson, F.S.I., said that it was quite a mistake to suppose that the object of town planning was to prepare a gigantic housing scheme, although this seemed to be the common impression among large numbers of members of local authorities and surveyors. The intention of town planning, on the contrary, was to provide that the development of an area, if and when it took place, should be on the lines of a plan which had been previously prepared, so that conditions of economy, healthiness, convenience, and amenity were secured. A town planning scheme had not necessarily any effect whatever in encouraging development, but it did ensure that such development as took place was on sound lines.

The scope of a town-planning scheme was very wide. The list of subjects which might be covered by the provisions of a scheme included such things as drainage and water supply, which, in point of fact, had not been dealt with so far in town-planning schemes. The question of zoning, or the determination of the character of the buildings to be permitted in various parts of the area, was of fundamental importance. Then there was the question of density of buildings, height of buildings, new streets, widening of existing streets, building lines, areas reserved for open spaces and allotments.

The question of streets was one upon which owners and surveyors often rather misapprehended the object of the scheme. The object of putting a new road on a plan was not to imply that the authority was going to make that road either immediately or at any time. All that it meant was to indicate on the map the route of a road which, it was felt, would be required if that land was developed. Sometimes it was a matter of providing a route for through traffic, which might be required before the land was developed, but in the ordinary way the intention was that if an area of land was to be developed such a road should certainly be provided.

The lecturer also mentioned the proportion of open space which was now regarded as the minimum. This was, for children's playgrounds, one-third of an acre per 1,000 population, for playing fields for adolescents two and two-thirds of an acre, and other public open space perhaps two acres, making a total of five acres per 1,000 population. This was regarded as the minimum requirement to be satisfied, and, of course, in preparing a scheme it was the estimated ultimate population which was taken as the basis.

The lecturer then dealt in detail with the Uxbridge Rural District Council scheme.

MUNICIPAL AND COUNTY ENGINEERS.

The Institution of Municipal and County Engineers paid a visit—under the presidency of Mr. Edward Willis, M.Inst.C.E.—to the Borough of West Ham on January 14. The party, numbering about 100, were greeted at the Town Hall by the Mayor (Alderman Streimer), to whom the president replied. Six papers were prepared for discussion by the meeting, five of them being by Mr. W. Lionel Jenkins, M.A., M.Inst.C.E., the borough engineer. He spoke first on "Roads in West Ham," dealing with the East Ham and Barking by-pass constructed by the Ministry of Transport. He then described the new flats at Manor-road, stating that 152 had been completed and occupied, 72 were nearing completion, and 196 were now in the early stages of erection. The Corporation now had either erected or in course of erection 420 flats, and the estimated cost, including buildings, fencing and lay-out, roads and sewers, was £331,348. Another paper dealt with the sewerage of West Ham with a technical description of Abbey-road pumping station that was of great interest to the meeting. The construction of river walls in West Ham (rivers Thames and Lea) was of topical interest in view of the recent floods; and another paper dealt with the proposed offices and showrooms for the electricity department for which a tender has been accepted at £63,367.

A discussion followed, to which Mr. Jenkins briefly replied.

THE INSTITUTE OF BUILDERS.

Captain W. T. Creswell, Barrister-at-Law, lectured on Thursday, January 19, to the members of the Midland Branch of the Institute of Builders at the Chamber of Commerce, Birmingham. The subject of the lecture was "Building Contracts and Sub-Contracts." In the absence of Mr. F. G. Hodges, F.I.O.B. (Chairman of the Branch), the chair was taken by the Institute President, Mr. S. G. Sapcote, F.I.O.B. There was a large attendance of members, architects and others.

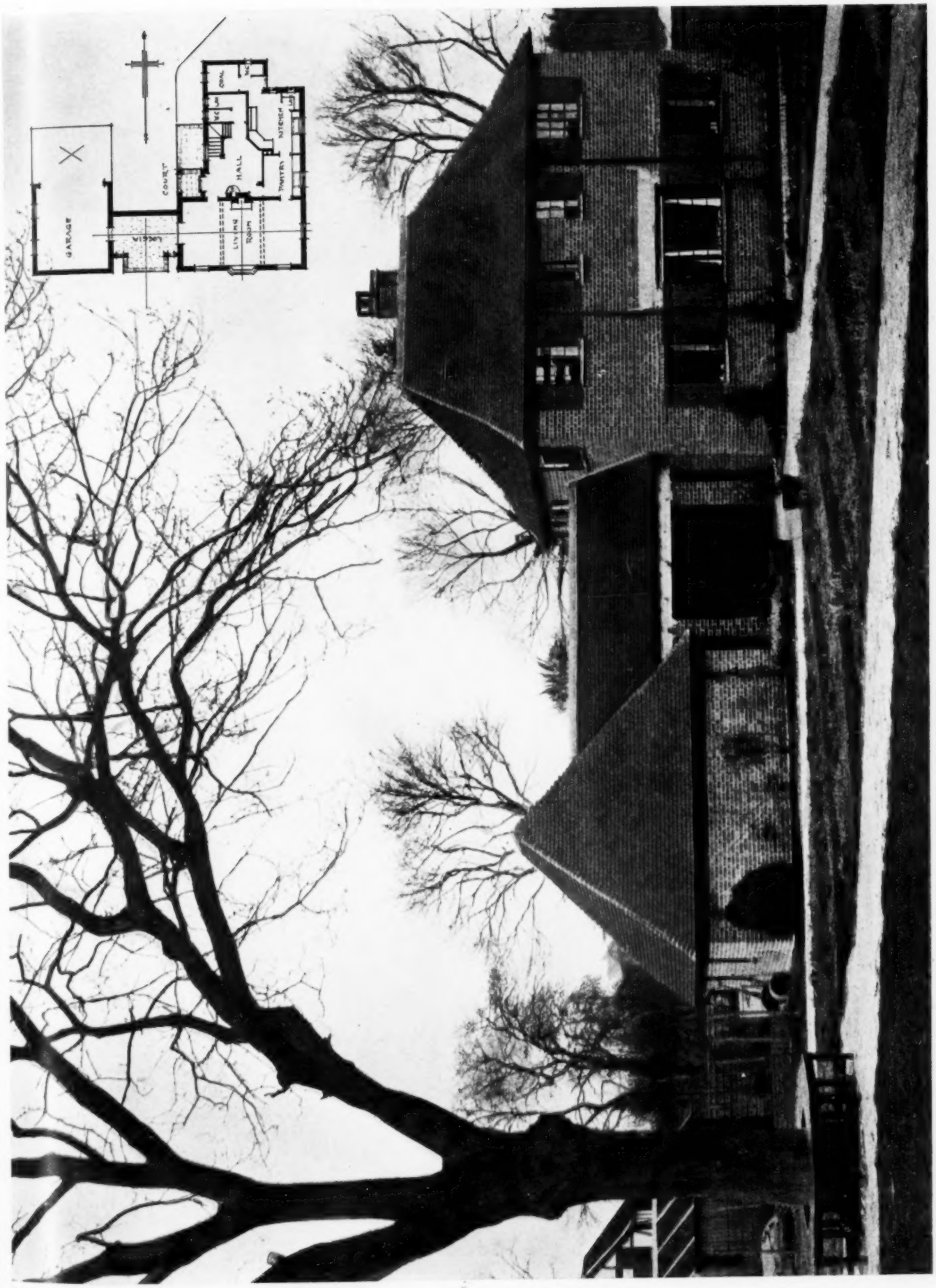
The lecturer dealt, among other matters, with: the building agreement or contract and its formation; contracts with Government, public and other bodies; entire or lump-sum contracts; variations, extras and omissions; the provision of bills of quantities forming or not forming part of the contract and their accuracy; errors and omissions; the architect's position as quasi-judge and arbitrator; the law relating to sub-contracts. The opportunity was also taken to touch lightly upon questions of breach of contract and, more particularly, upon the New Form of Building Contract.

At the conclusion of his address the lecturer spent an hour in answering and discussing questions addressed to him by members of his audience. A vote of thanks, proposed by the President and seconded by Mr. G. Elvins, F.I.O.B., concluded a very useful and interesting evening.

R.A. Exhibition, 1927.

New Offices, Leek, Staffordshire.

Messrs. Longden & Venables, F. & L.R.I.B.A., Architects.



Churton Cottage, Bramley, Guildford, Surrey.

Mr. G. R. Gilbertson Topham, A.R.I.B.A., Architect.

UNIV. OF WIOH.

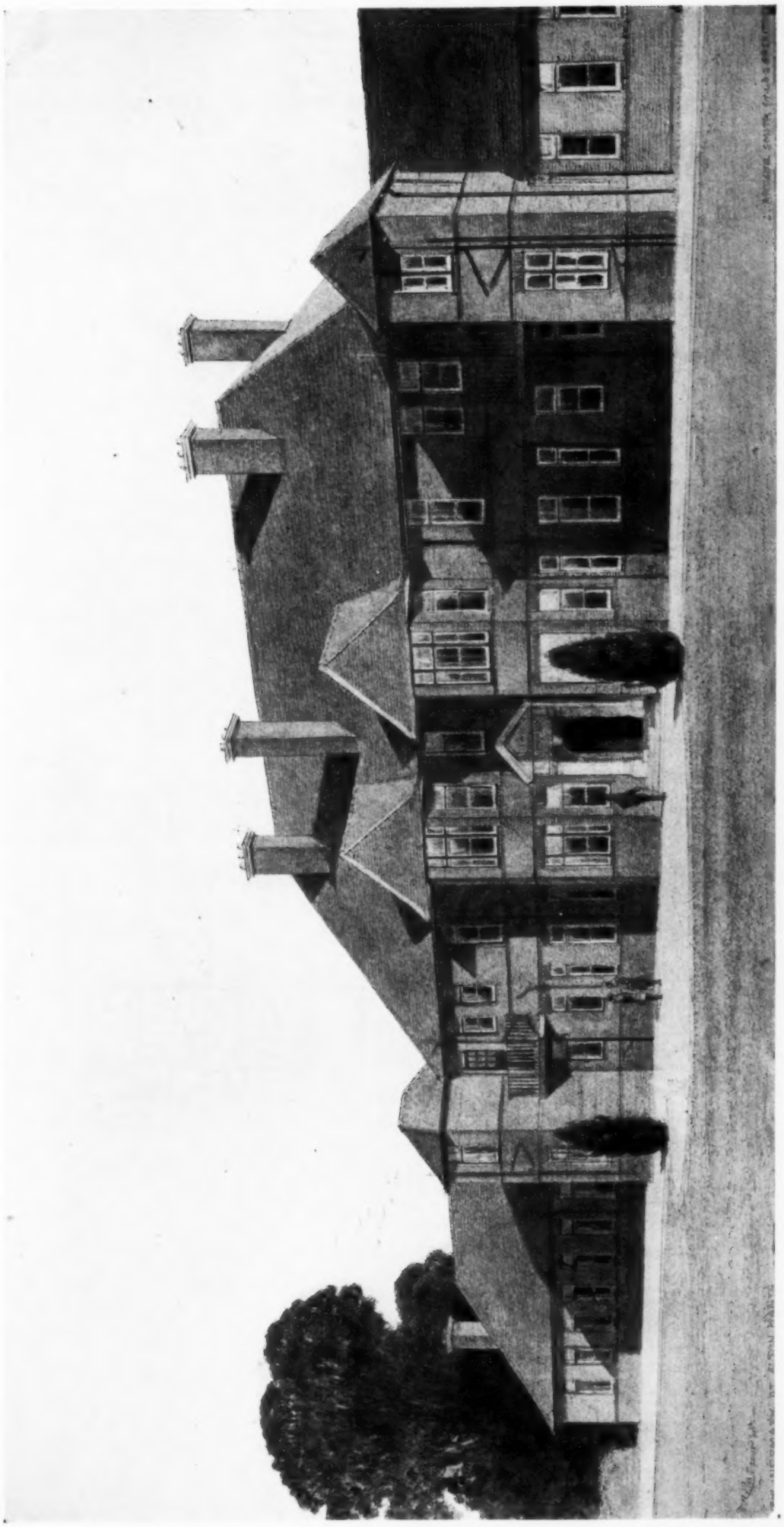
VIEW IN COURT.

VIEW FROM NORTH-EAST.

Churton Cottage, Bramley, Guildford, Surrey.

MR. G. R. GILBERTSON TOPHAM, A.R.I.B.A., Architect.

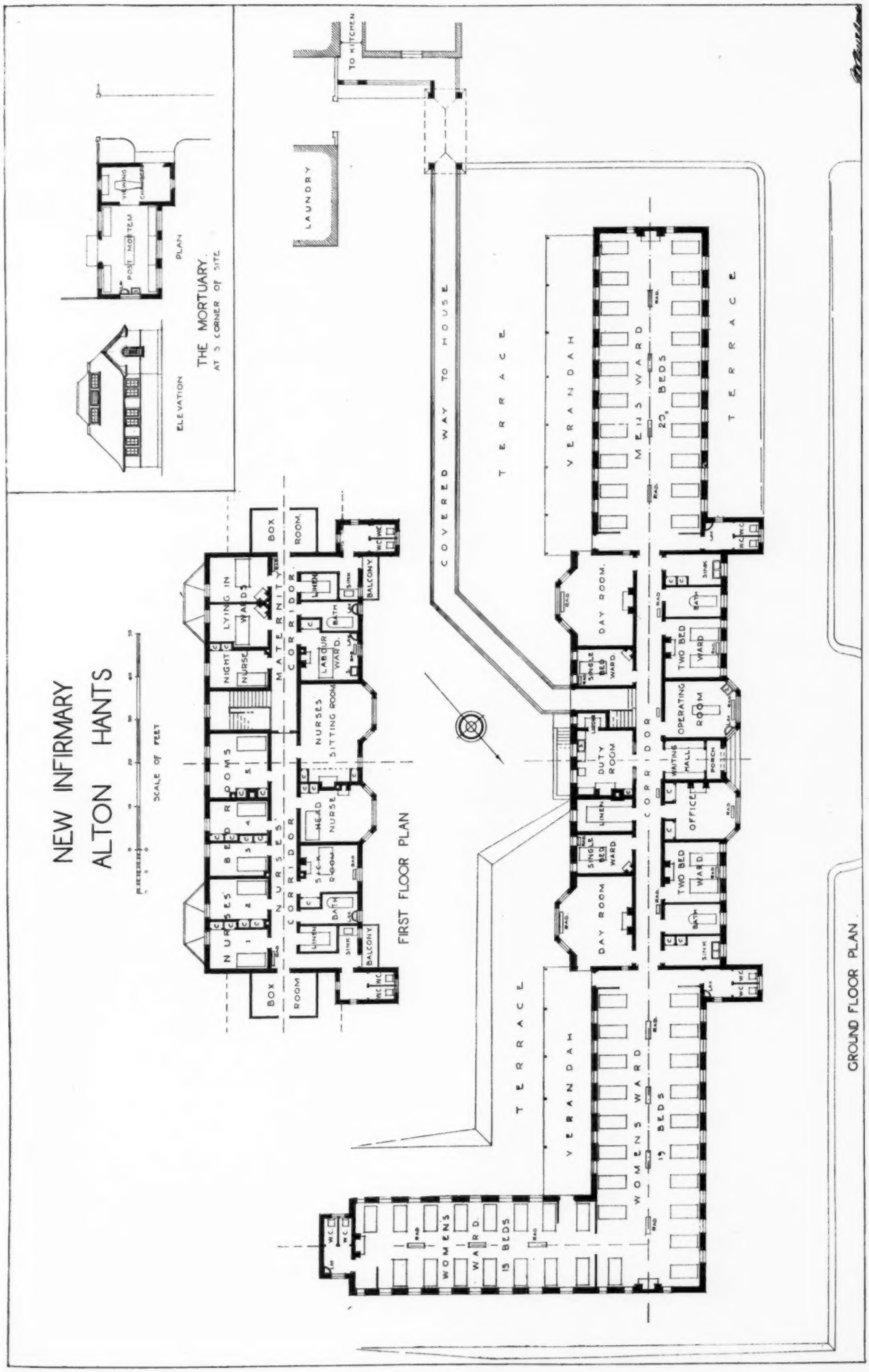
UNIV. OF MICH.



New Infirmary, Alton, Hants.

MR. J. ARTHUR SMITH, F.R.I.B.A., Architect.

UNIV. OF MICH.



New Infirmary, Alton, Ha

MR. J. ARTHUR SMITH, F.R.I.B.A., Architect.

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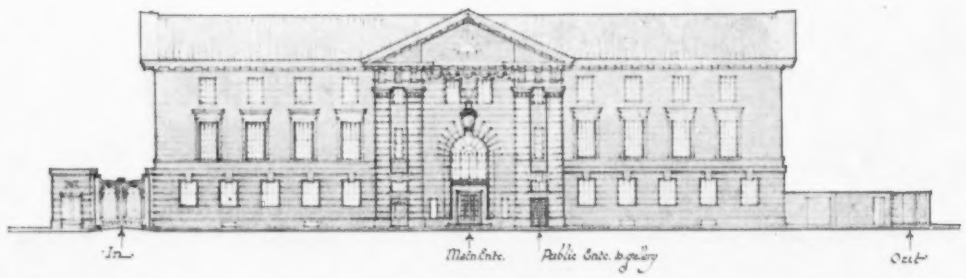
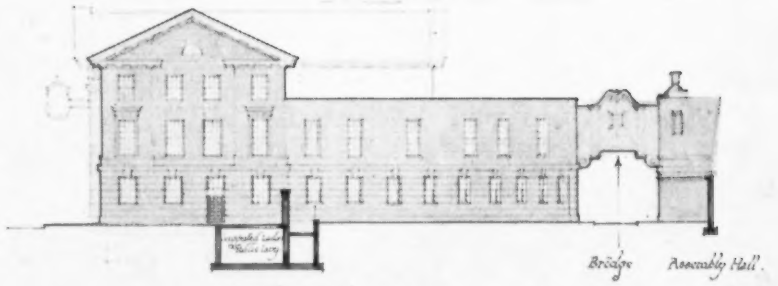
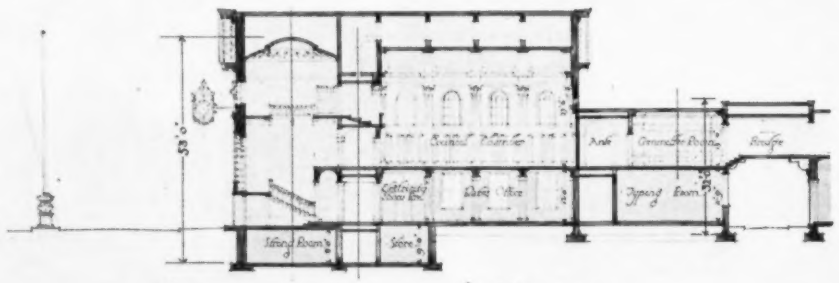
Borough of Wimbledon Municipal Offices and Assembly Hall



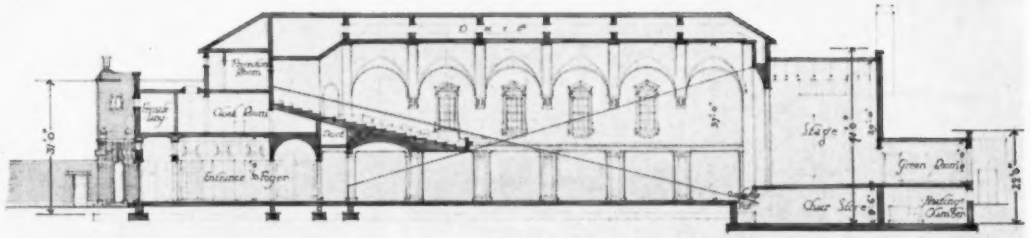
Elevation to The Broadway



South East Elevation to Queens Road

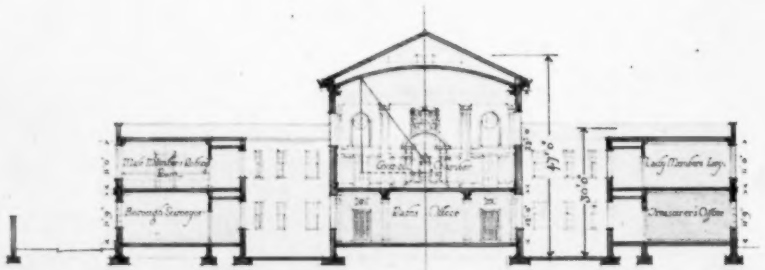


Section A-A

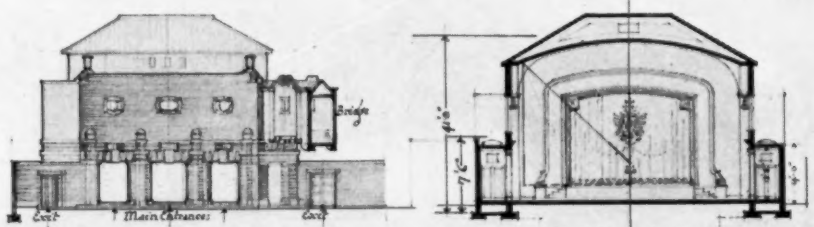


Section B-B

The Assembly Hall



Section C-C



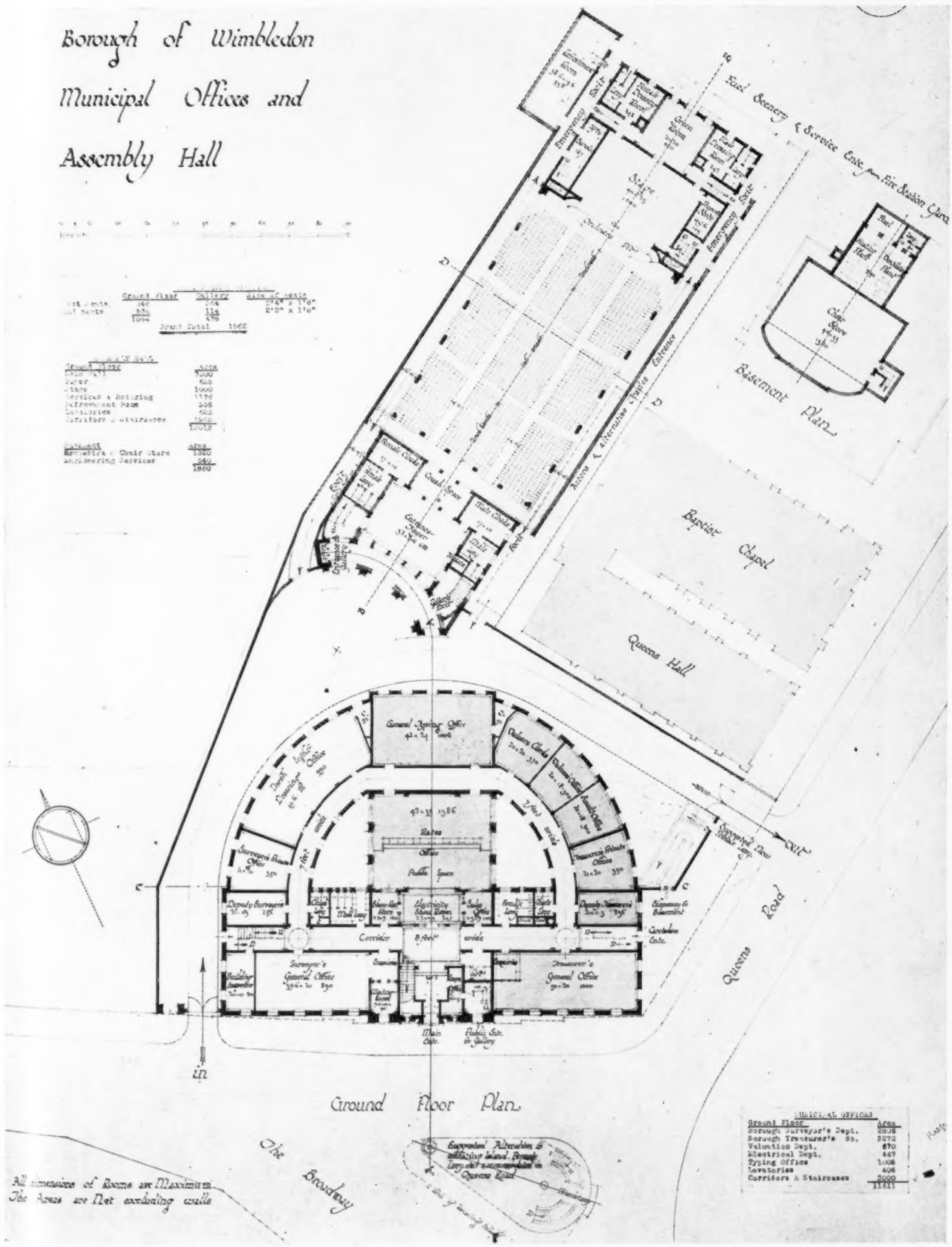
Assembly Hall

Section D-D

Wimbledon Town Hall and Municipal Buildings Competition: Second Premiated Design.

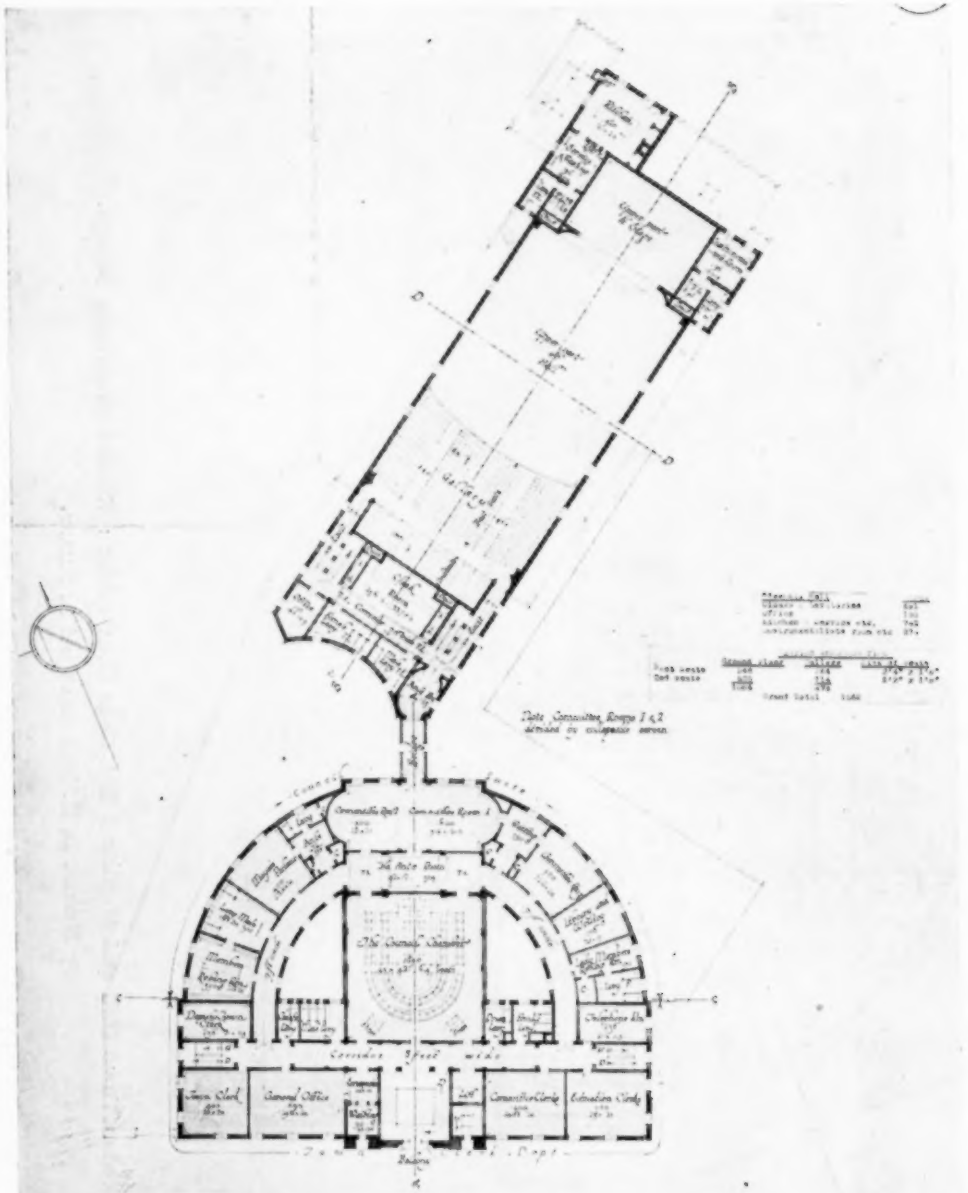
By Messrs. D. H. McMorran and A. Bailey.

UNIV. OF MICH.



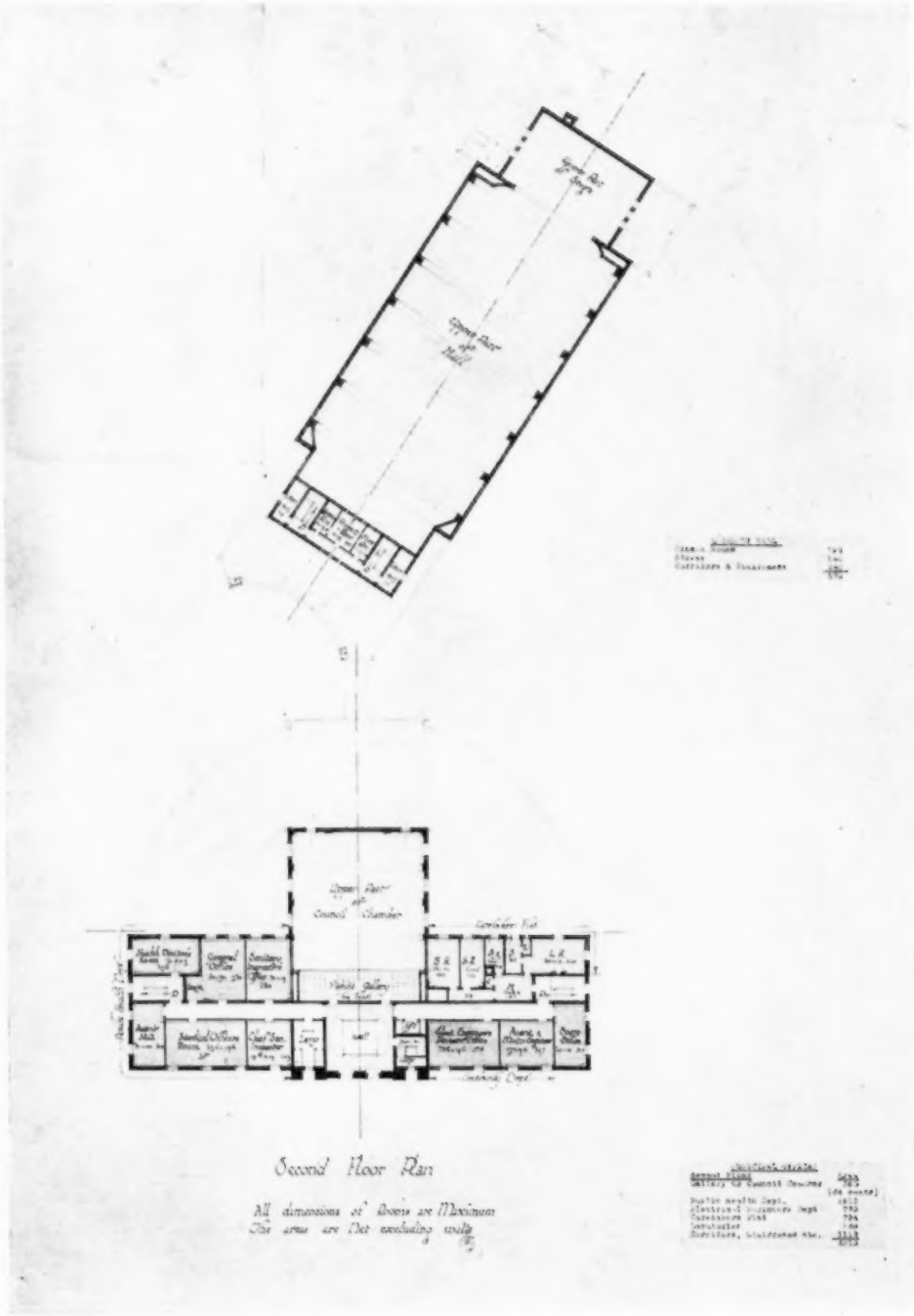
Wimbledon Town Hall and Municipal Buildings Competition: Second Premiated Design.

By MESSRS. D. H. MCMORRAN and A. BAILEY.



First Floor Plan

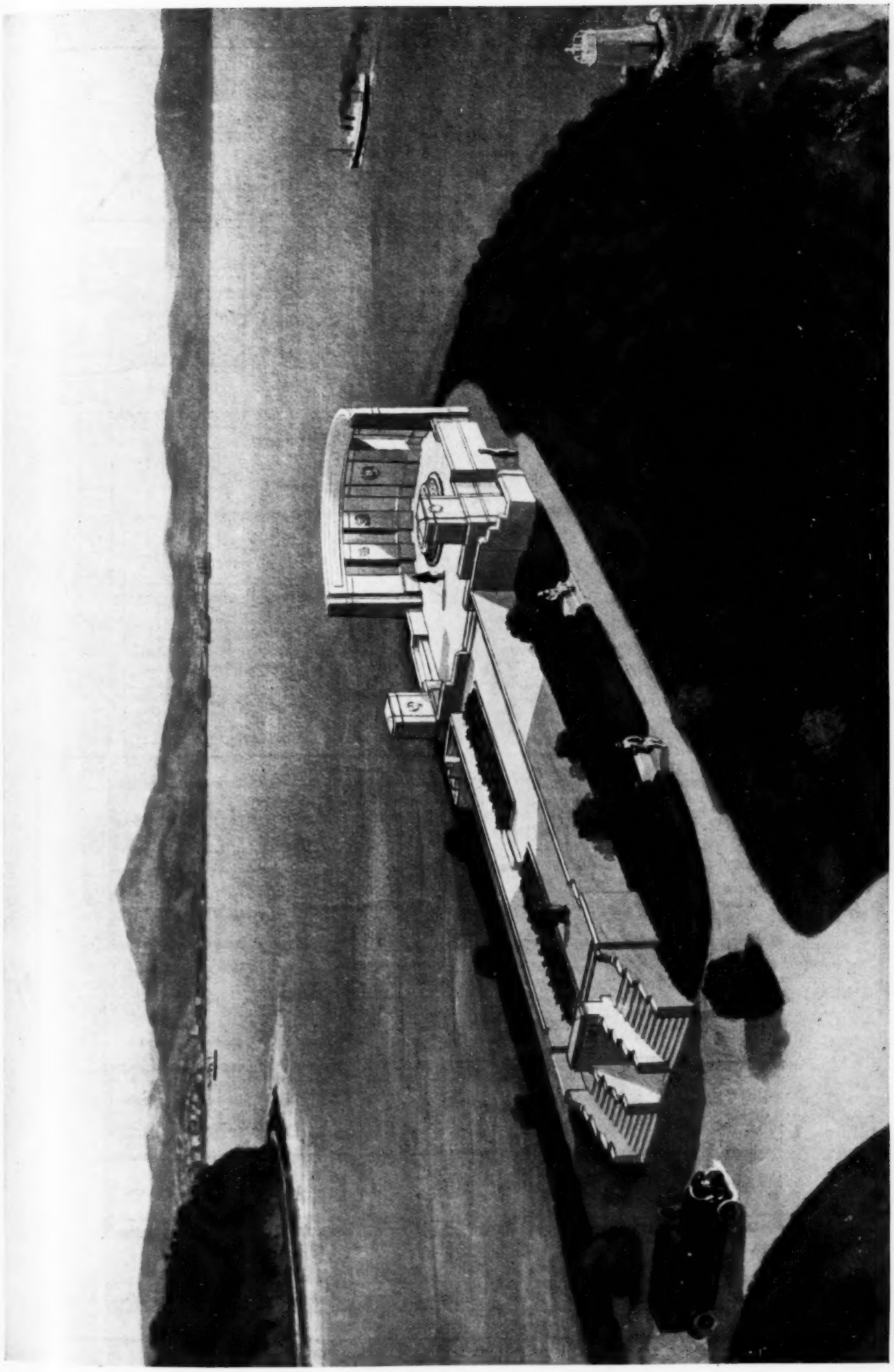
All dimensions of Rooms are Maximum.
The areas are Net excluding walls.



Second Floor Plan

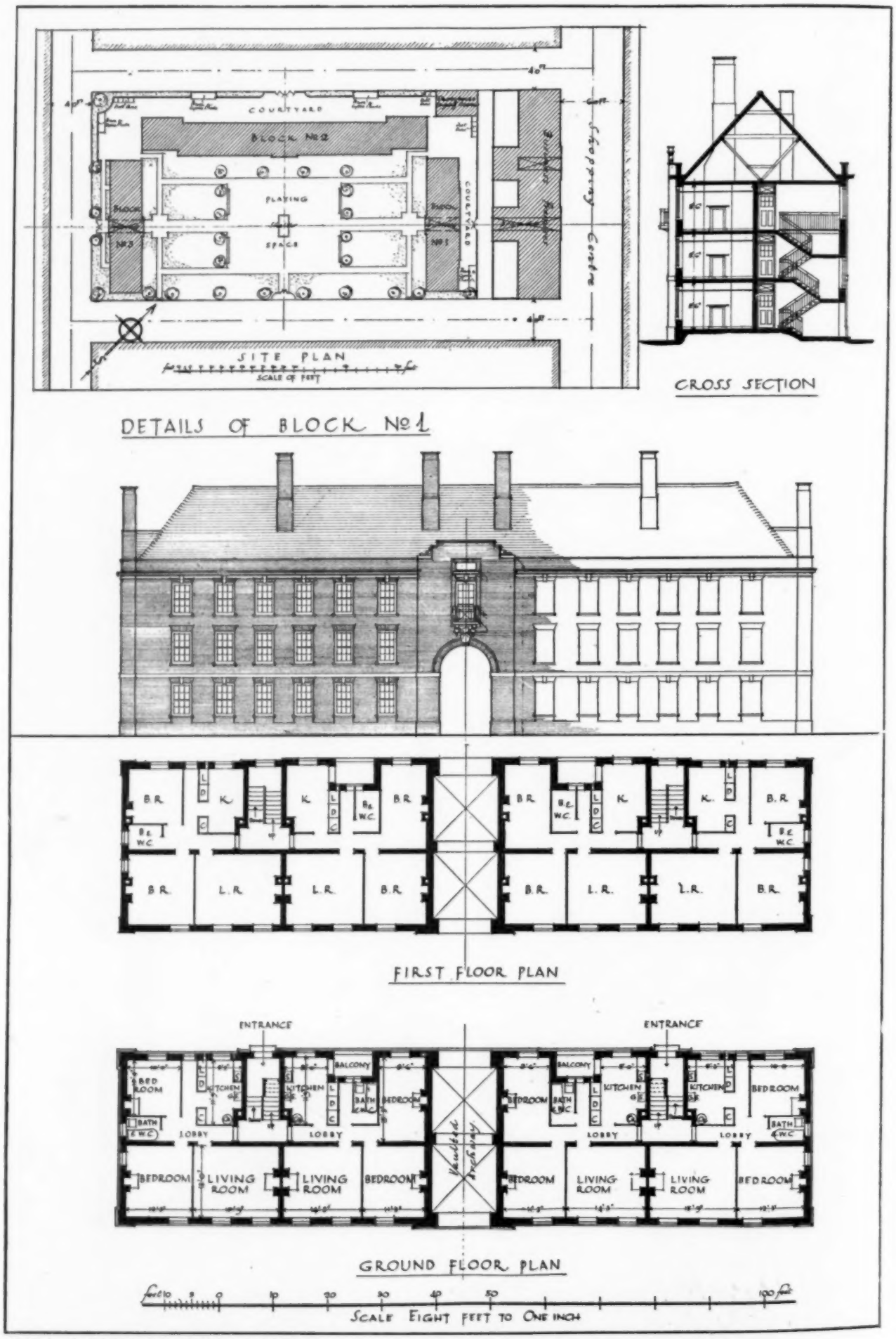
All dimensions of Rooms are Maximum
The areas are Net excluding walls

Wimbledon Town Hall and Municipal Buildings Competition: Second Premiated Design. By MESSRS. D. H. McMORRAN and A. BAILEY.



The Massey Memorial, Point Halswell, New Zealand.

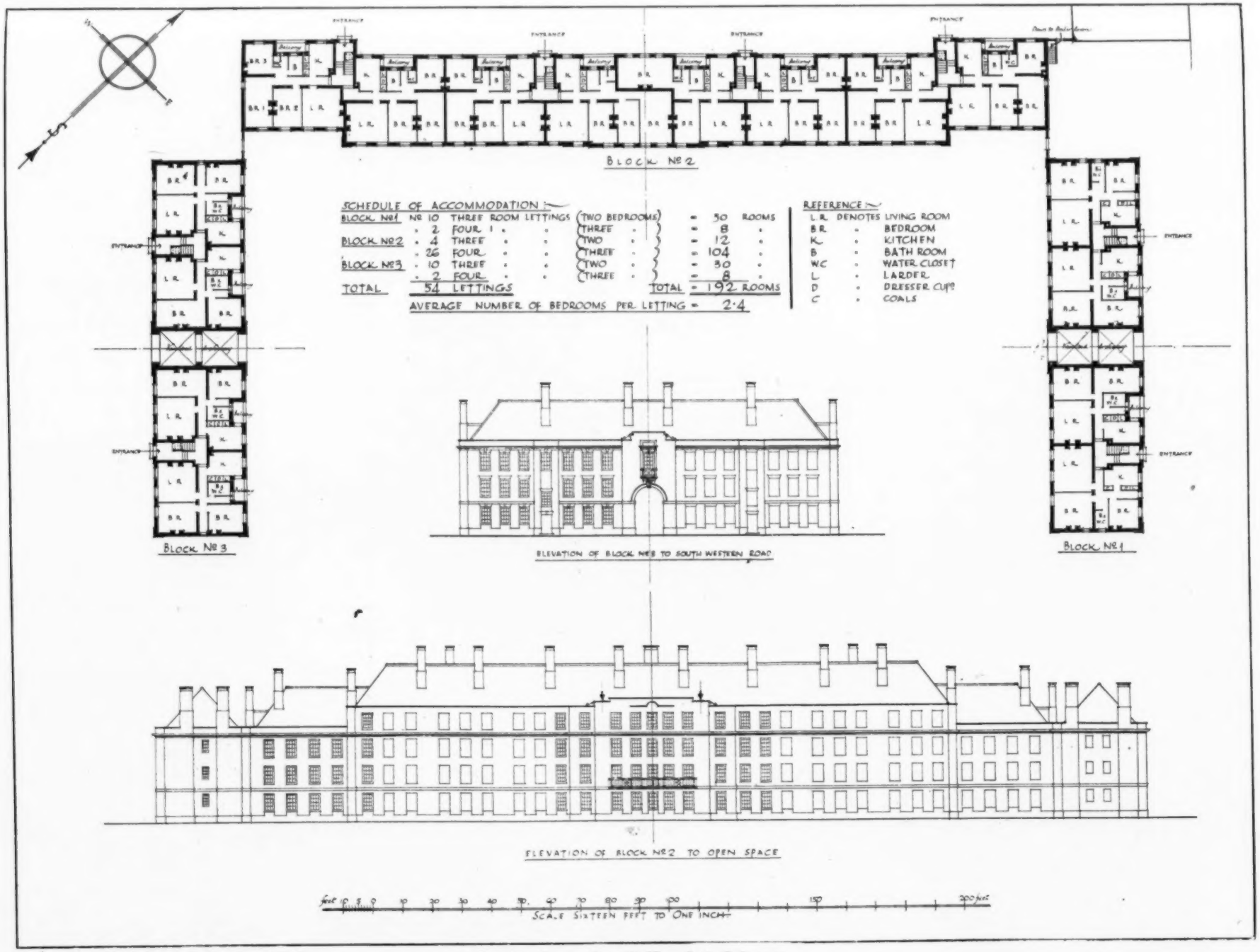
MR. S. HURST SEAGER, F.R.I.B.A., and MESSRS. GUMMER & FORD, Associated Architects.



R.I.B.A. Final Examination: Testimonies of Study.

Design for a Small Housing Scheme.

By MR. C. G. MANT (Northern Polytechnic). Published by arrangement with the Board of Architectural Education.


BLOCK Nº 2
BLOCK Nº 3
BLOCK Nº 1
SCHEDULE OF ACCOMMODATION:
BLOCK Nº1 Nº 10 THREE ROOM LETTINGS (TWO BEDROOMS) = 30 ROOMS
. 2 FOUR . . (THREE .) = 8 .
BLOCK Nº2 . 4 THREE . . (TWO .) = 12 .
. 26 FOUR . . (THREE .) = 104 .
BLOCK Nº3 . 10 THREE . . (TWO .) = 30 .
. 2 FOUR . . (THREE .) = 8 .
TOTAL 54 LETTINGS TOTAL = 192 ROOMS
AVERAGE NUMBER OF BEDROOMS PER LETTING = 2·4
REFERENCE:
L.R. DENOTES LIVING ROOM
BR. . BEDROOM
K. . KITCHEN
B . BATH ROOM
W.C . WATER CLOSET
L . LARDER
D . DRESSER CUPB
C . COALS
ELEVATION OF BLOCK Nº3 TO SOUTH WESTERN ROAD
ELEVATION OF BLOCK Nº2 TO OPEN SPACE
SCALE SIXTEEN FEET TO ONE INCH

R.I.B.A. Final Examination: Testimonies of Study.

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ARCHITECTURE, NATURE AND MAGIC—II

BY W. R. LETHABY.

"THE TEMPLE OF HEAVEN."*

DURING the ages when architecture was, as it were, being founded or found out, it was given a content of mental and magical character which is most difficult for us to apprehend. As the world was thought to be formed in the likeness of a great structure, so conversely sacred and ceremonial buildings were planned in conformity with the heavenly prototype so that they might share its qualities of perfection and permanence. Continuous reactions were thus set up between the earthly and heavenly structures, and this gave architecture, in those wonderful epochs of first discovery and growth, depth, power, mystery, magic.

A work of architecture was a cistern that held all that was poured into it of thought and intention and the old authentic things still to some extent preserve their contents for us. In our modern efforts, however, all is different, for we have passed into another age that thinks in other ways. The mere "look" of the old magic qualities without the awe and wonder which produced them are repulsive, silly, and mind-destroying. Wonder for us can only be re-awakened by exploration of, and experiment in, realities—in a word, by the scientific method, which at just this time is the most characteristic mode of thinking. All the brilliant compilations we are given in "styles" are only make-believing and whim-works. The way of adventure is the way of romance and beauty.

The first causes of architecture were the external pressures of climate and man's need for protection. Then other compelling conditions were found in the various materials most readily at the hand of the builder: clay, reed, timber, rough stones. Architecture, however, developed not only by reasoning and experiment, by discoveries in geometry and structural law, but also in response to man's waking mind, to ideas of magic, ritual rightness, and imitation of the order of nature.

. . . . . .

In my former essay I collected testimony showing that ancient buildings, especially great ritual buildings, were erected in harmony with, and even in imitation of, the world structure. A long passage from Maspero, the master Egyptian archæologist, was quoted, which may be condensed here in reintroducing the subject. "The Egyptian temple was built in the image of the earth such as the Egyptians imagined. The earth was for them a sort of flat slab more long than wide, the sky was a ceiling or vault supported by four great pillars. The pavement of the temples represented the earth, the four angles stood for the pillars, the ceiling, vaulted at Abydos, or more often flat, corresponded to the sky." He goes on to describe the decorations as having added details to this general scheme.

In ancient Egypt not only the temple and the tomb but the coffin also was formed in the likeness of the earth and the heavens. The buried individual was thus placed in relation to the whole Cosmos. A wooden coffin from Thebes in the Museum, probably as early as 2600 B.C., has the underside of the lid close set with painted stars. On the inner side of a mummy-shaped cover (No. 6678) "are painted figures of the gods of the constellations and of the planets, signs of the Zodiac and the Decans." This is dated *c.* 400 B.C. About the beginning of our era fine wooden coffins were made with covers in the form of a rounded vault and with angle posts rising to the full height of the cover. This general form repeats that which from earlier ages had been common for small buildings and shrines. One of these coffins in the Museum dated *c.* A.D. 100 has the goddess of the sky, *Nut*, extended the full length of the interior of the curved cover looking down on the corpse. On either side of the goddess are the signs of the Zodiac and stars. At one end, by the head of the mummy, is painted the rising sun of the new life and at the feet is the doorway of death over which is the black cow of Hathor with the symbol of (new) life hung about its neck. On the external rounded surface of the coffin is set a carved representation of the solar hawk.

The persistence of this round top form of structure with angle posts rising to the height of the crown of the "vault" is something of a mystery. I find an example at least 3,000 years older than the coffin just described carved on one of the palette-like stones at the Museum. It appears again in a hieroglyph of the fourth dynasty (Fig. 1), and in a small votive shrine-like slab *c.* 1250 B.C. (Fig. 2), and is several times

FIG. 1.

FIG. 2.

found painted on coffins and the papyri. I suppose the corner pieces are the four pillars of the sky. This may seem fanciful, but after it was written I found substantiation in the Museum Catalogue account of wooden tomb tablets—"Being imitations of the fine stone stelæ of the earlier period they have rounded tops which were intended to represent the vault of heaven . . . at the top we usually find the winged sun, the emblem of the god *Horus* of Behutet, *i.e.*, the sky god . . . beneath comes a representation of the deceased making offerings to *Ra* or *Osiris*." Again, we are told of the four children of *Horus*, that "originally these gods represented the pillars which held up the iron plate that formed the sky."

An ancient Babylonian record given by Messrs. King and Hall in their account of discoveries in Western Asia furnishes evidence as to the thoughts underlying the design of early temples in Mesopotamia. It tells how King Gudea (*c.* 2700) rebuilt the sanctuary of a high god and transported his image from a yet older temple. The new building is described as being like a mountain, terrible and strong as a bull. The doors were guarded by statues of heroes and monsters. Facing the rising sun the emblem of the Sun-god was set up. Within was a stone tank for water. The temple was surrounded by dependent buildings in an enclosed garden where trees and flowers grew around a large tank; here the birds flew unmolested—it was a paradise. The plan of the temple had been drawn by one of the gods on a tablet of lapis-lazuli, and revealed to the king. On the appointed day, at the first sight of dawn, the great god and goddess entered their new temple "like a whirlwind like the rising sun."

Around the temple proper were numerous courts and minor shrines, the area covered by the buildings, we are told, must have been enormous. The buildings included dwellings for the priests, shelters for the sacrificial animals, treasuries, and store-houses for the produce of the temple lands. The emblem of the sun facing the east and the entry of the god into his sanctuary at dawn show that the whole was built in correspondence with the great world temple. The remains of an ancient temple recently found at Ur was of square form, and it is restored as having had a domed roof. (The most important structures in these temple groups were the high-terraced towers or Ziggurats, to which we shall return in the next chapter.)

It seems probable, from the facts now in evidence, that temples for the powers of nature were first erected in Mesopotamia, and from thence spread to Egypt and other countries. The dome of the tomb called the Treasury of Atreus at Mycenæ has thickly distributed over its surface many holes, some of which have been found to contain bronze rivets. It is probable that bronze stars were scattered over the vault. The form of the great chamber (*megaron*) of Minoan palaces, square with a circular hearth at the centre and four columns round about, may very well have been associated in the minds of the builders and the dwellers with the world structure, for, as we have seen, the sky was supposed to be supported by columns towards the four angles. The central sacred hearth was later maintained by the Greeks in the *Prytaneum* and by the Latins in the Temple of Vesta. I quote the following from Professor J. H. Middleton: "*Vesta* is the Latin form of the Greek goddess *Hestia*, to whom a sacred fire was kept always burning in the *Prytaneum* of every Greek city. Like the *Temple of Vesta*, the early Greek *Prytaneum* appears to have been circular. . . . The ever-burning fire which these sacred edifices contained, symbolising the family *hearth* or centre of home life, was probably derived from some prehistoric period. . . . At the beginning of the new year, on the 1st of March, the Fire of Vesta was extinguished and relighted. The same practice also existed in Greece with regard to the sacred fire in the *Prytaneum*. . . . The circular form of the shrine (*tholus*) symbolised the round earth. The sacred fire-altar of Vesta occupied the place of a statue of the goddess. The fire was a sort of religious centre of worship, the common hearth of the whole Roman people." The temple was raised on a basis about 10 ft. high, and a Chinese from Peking would have recognised in it some resemblance to his own Temple of Heaven.

A temple may almost be defined as a localised representation of the temple of the heavens not made by hands. Early Christian writers explained the symbolism of the Jewish Temple on this principle. Such were the old Mesopotamian and Egyptian temples. Greek temple architecture preserved the tradition; the temples are carefully set square with the quarters of the heavens, the cella is lighted only by a great doorway facing the rising sun. In the east pediment of the Parthenon are sculptures of the rising sun and setting moon. It was customary to paint stars in the coffers of the ceiling; the Propylea of the Acropolis had such a ceiling, as remnants which came down to our day showed.

In *Zeus*, Dr. A. B. Cook writes (II., p. 361): "In the Italian area the representation of the sky was developed along different lines. Since the sky itself was conceived as resting on four pillars, the primitive effigy of Janus, the divine Sky, was a vault resting on four supports. . . . It needs an effort of imagination on our part to realise that the arch of Janus was no mere emblem, but an actual copy of the animate Sky. . . . Janus was an older Jupiter, a sky god. The Romans used the same word for the god (Janus) and for the arch (janus)." Several illustrations from coins of representations of the Arch or Temple of Janus are given in the volume.

"The said pieces show us a small oblong

* The last part should have had the title "The World Fabric."

edifice with a heavy flat roof, at either end is a pair of columns carrying a semi-circular arch which is filled by shut doors and adorned with a festoon. Sheathed throughout with bronze it would aptly represent the bronze sky of early belief—a similitude borne out by its arched vault and its four supporting pillars." The flat roof-top should be noted, in the representations the shape of the whole seems to be cubical. Middleton says the Janus temple in the Forum dated from the Republic. "This curious little shrine is described by Procopius as being a temple wholly constructed of brass, of square form and of such a size as to contain a statue of Janus." This statue had one face looking east and one to the west. It was very ancient and, according to Pliny, "the figure indicated with its fingers the number 355, that is the number of days reckoned in the Roman year."

It is suggested by Dr. Cook that all Roman Triumphal Arches shared in the heavenly character of the Janus Arch. It may be noted, in regard to this, that even the late Arch of Constantine has on it relief sculptures of the rising sun, the setting moon, and river gods. Further, arches that contain figures of gods on reliefs and coins are heaven symbols. The same idea may be read into the rounded tops of the memorial reliefs of Assyrian Kings (cf. Fig. 2).

The subterranean structures for Mithras worship were shaped and furnished with a view to Cosmic symbolism. The Mithraic sculpture in the London Museum found in the city has the relief of Mithras slaying the Bull within the Zodiac circle, with symbols of the four quarters in the corners. Christian churches to some degree, but less consciously, carried on the tradition. Cosmic symbolism has dominated Asiatic architecture up to our own day.

I quoted before, from Balfour's *Scrap Book*, a description of the Palace of the first emperor of united China, whose vast dominions "could only be symbolised by an imitation of the starry vault." This was doubtless more or less mythical, but the ideas are there all the same. This Emperor, who died about 210 B.C., is famous for the burning of the books. Dr. Giles gives an account of the burial of this same ruler, extracted from "the first and greatest of China's historians," who wrote about 100 B.C.

"In the ninth moon the Emperor was buried in Mount Li, which he had caused to be tunnelled. He employed his soldiery to the number of 700,000 men to bore down to the three springs (that is, until water was reached), and there a foundation was laid and the sarcophagus placed thereon. Rare and costly objects were carried there. Artificers were ordered to construct mechanical cross-bows, which, if anyone were to enter, would discharge arrows. With quicksilver, rivers were made—the Yangtsze, the Yellow River, and the Ocean—the metal being made to flow by machinery. On the roof were delineated the constellations of the sky; on the floor the divisions of the earth. . . . As soon as the ceremony was over and the path blocked up, the outside gate was let fall and the mausoleum was closed. Trees and grass were then planted, that the spot might look like the rest of the mountain" (*The Civilisation of China*, p. 30).

"Twenty centuries ago, under the Han dynasty, one of the wizards represented to the sovereign that, in order to establish relations with transcendent beings, everything about the Palace must be made to recall to the spirits their own heavenly mansions. Nothing was neglected such that they could not mistake it for an earthly habitation. An edifice was built, with lofty terraces and pavilions, whose walls were painted with vistas of earth and sky of the Supreme Being and his train. They went so far as to add little sculptured clouds to the chariots of state—symbols of aerial existence" (Bonnard).

The pyramids of Egypt are square in plan, and many early towns were quadrilateral. When Akhnaton founded the new city which he built, four boundary stones were accurately placed so that it should be square. In Mesopotamian buildings we observe a similar liking for square plans. Palace halls of the age of Darius and Xerxes were exactly square, with similar openings in all four walls. This same idea is brought clearly out in Ezekiel's prophecy of the Holy City of Israel, which was to be four square. "And these shall be the measures thereof: the north side four thousand five hundred reeds, and the south . . ., and the east . . ., and the west . . . And these are the goings out of the city: and the gates of the city shall be after the tribes of Israel; three gates northward: at the east side three gates . . . at the south side three gates . . . at the west three gates. It shall be eighteen thousand reeds round about." An architecture of the four aspects was especially developed in India and China.

According to Fergusson, the sanctuaries of northern Hindu temples are always square, and often cubical within: the roof rises high in an ornate pyramidal structure.

In Ceylon there is a ruin of a vast Buddhist monastery, described by Fergusson. It is thought to have been built about 161 B.C., "according to a plan procured from heaven. It is said to have been 225 ft. square, and as high as broad; the height was divided into nine stories . . . All that remains now are the 1,600 pillars which once supported it, 40 on each face. The remaining eight stories rose one above another, each diminishing as it ascended, so that the building assumed the outline of a pyramid. . . . The pyramidal shape is adopted to this day in all Buddhist countries. The name of brazen was applied to it in consequence of the roof of brass that covered it; gilt and ornamented, as no doubt it was, it must have been one of the most splendid buildings of the East. If I am not mistaken, the many-storied Hindu temples in the south of India are copies of such buildings as this." This was clearly a heavenly building, which derived its directing idea from the stepped pyramids of Assyria and the halls of pillars of the Persian monarchs. Nine was a sacred number, representing as many heavens of the Buddhists.

Early Buddhist temples followed the central type of planning. A temple is represented on a relief sculpture recently added to the Fine Art Museum, Boston. It shows a high square structure "crowned by a four-angled dome. . . . No temples of earlier than fourth- or fifth-century date have survived, but from this and other reliefs it is evident that temple architecture had already attained to a relatively advanced stage" (A. Coomaraswamy). Many smaller shrines repeat the square central building with doorways in the four directions. Of this type is the beautiful bronze structure in the gardens of the Summer Palace near Peking, illustrated by Dr. Bushell. It stands on a high square basis, with projecting stairways in the four directions, which give it a cruciform shape (Fig. 3). The same central

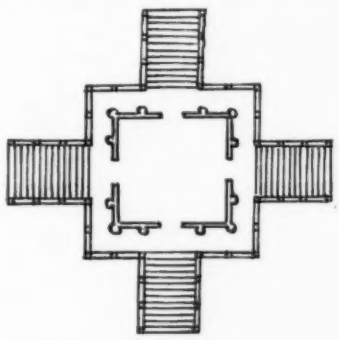


FIG. 3.

plan, with doors opening to the four quarters of the world, is the basis of many splendid imperial tombs in India. The famous *Taj* at Agra, crowned with five domes, is an example. All these were heavenly buildings.

Of the assemblage of buildings at a Buddhist centre, Dr. Bushell says: "The general plan of a Buddhist temple resembles that of a secular residence, consisting of rectangular courts proceeding from south to north, with the principal edifice in the centre. A pair of stone lions guard the entrance, flanked by lofty twin columns of wood, which are mounted with banners on holidays. The gateway is large and roofed to form a vestibule, in which are ranged on either side gigantic figures of the Kings of the *devas*, guarding the four quarters. Passing through the vestibule one sees . . . in front the main hall of the temple called 'the jewelled palace of the great hero,' that is to say, the historical Buddha. He is the central figure of the triad enthroned upon lotus pedestals inside."

In India the symbolism of cosmical relations persisted as lately as the sixteenth century, when the buildings of Akbar at Futipur Sikri were erected. The palace "is oriented auspiciously like a Hindu temple, with the four walls facing the cardinal points. Akbar's throne in his private audience chamber was raised upon a single pillar in the centre of it, with a colossal bracketed capital symbolising the throne of Vishnu, Upholder of the Universe—the ideal Hindu ruler being regarded as Vishnu's viceregent on earth. The *Diwán* is a square building, about 43 ft. on the outside, containing a single vaulted chamber 28 ft. 8 in. square, in the centre of which is Vishnu's symbolic pillar or tree of the Universe, on the top of which Akbar sat enthroned. Galleries ran round the building at the height of the top of the pillar, which is connected with them by passages along the diagonals." On the ground floor there are central doors in the four directions; on the gallery level are twelve windows, three on every side. The vault is divided into nine compartments by ribs (Fig. 4).

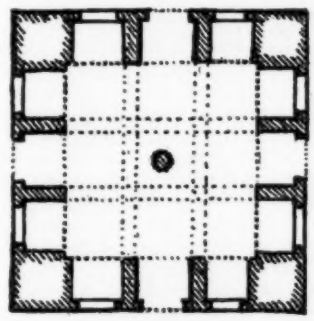


FIG. 4.

In the construction of Indian domes, Mr. Havell says that they are commonly built with eight ribs, tied together at the base, forming a "*chakra*, the Wheel of the Law to Buddhists and a symbol of the universe to all Hindus. The eight spokes of the wheel would be placed auspiciously by the master-craftsman in the direction of the four quarters and the intermediate points."

The following descriptions of Chinese buildings are quoted from Dr. S. W. Bushell's excellent work, published at South Kensington Museum about 25 years ago:—

"One of the grandest sights of Peking is the Temple of Heaven, surrounded by cypress trees in a walled park over three miles round. The oxen used in sacrifice are kept in the park. Heaven is not worshipped alone; the ancestral tablets of four imperial forefathers are associated with the tablet of *Shang Ti*, the 'supreme deity,' followed by those of the sun, moon, planets, and starry constellations, while the spirits of the atmosphere, winds, clouds, rain and thunder are ranged in subordinate rank. Heaven is distinguished by an offering of blue jade."

"The great altar of Heaven, the most sacred of all Chinese structures, consists of three circular terraces, with marble balustrades and staircases at the four cardinal points. The upper terrace is 90 ft. wide, the base being 210 ft. The platform is laid with marble in nine concentric circles, and everything is arranged in multiples of nine. The emperor prostrate before heaven on the altar, surrounded by the circles of the terraces and then by the horizon, seems to be in the centre of the universe. On the pavement are

figured the nine circles of as many heavens, widening in successive multiples till the square of nine, the favourite number of numerical philosophy, is reached in the outer circle of 81 stones. The annual sacrifice is at dawn on the winter solstice" (Fig. 5).

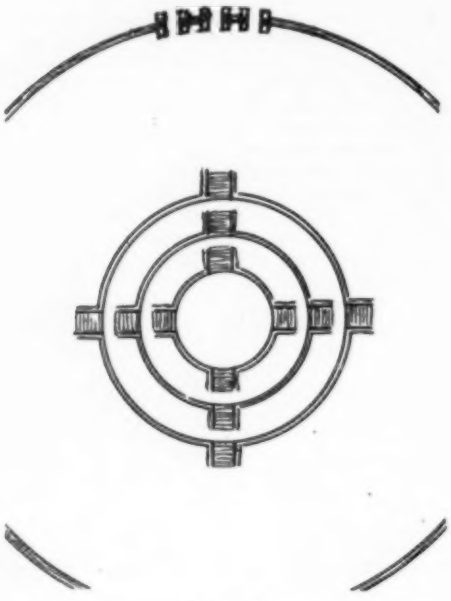


Fig 5.

"To the north of the great altar, which is open to the sky, is a second marble altar, similar, but somewhat smaller, dominated by an imposing triple-roofed temple covered with tiles of deep cobalt-blue, shining in the sunlight so as to make it the most conspicuous object in the city (Fig. 6). The name of this edifice is 'Temple of Prayer for the Year.' The Emperor goes there each spring to make offerings. It is 99 ft. high, the upper roof supported by four stately pillars, the lower roofs by two circles of twelve pillars. . . . During the ceremonies everything is blue. Colour symbolism is important in Chinese rites: at the temple of earth all is yellow; at the temple of the sun, red; at the temple of the moon, gravish-blue or moonlight-white" (S. W. Bushell).

The lowest story of the circular temple is of screen work in twelve divisions. The blue-tiled roof is in three stages, the upper one a hollow-sided cone rising to a big finial. There are four principal stairways up the terraces approaching from the four quarters, and four lesser intermediate stairways. Each flight is of nine steps thrice repeated. The main stairways had ramps down the centre of the flights, on which water and dragons were carved. The Emperor, 'Son of Heaven,' entered the roofed temple alone.

"The altar of the Earth is on the north of the city and is square in form; the offerings are buried. The temples of the Sun and Moon are on the east and west, also outside the city wall" (Bushell).

Another Chinese building which appears to be symbolically planned is the Hall of the Classics at Peking, which is said to have been built after an ancient model.

"The Emperor goes there in state on certain occasions to expound the classics, seated upon the large throne within the hall, which is backed by a screen in the form of the five sacred mountains. It is a lofty square building covered with tiles enamelled imperial yellow and surmounted with a large gilt ball, encircled with a pillared verandah under a second projecting roof of yellow tiles. The four sides consist each one of seven pairs of folding doors. It is surrounded by a circular moat with marble balustrades crossed by four bridges leading to the central doors. On the south stands a magnificent 'porcelain' *pailou*. . . . The panelling or facing of faience in three colours—yellow, green and blue—forms a framework for the inscribed tablets of white marble in the centre" (Bushell).

The Altar of Heaven at Peking mentioned above more properly perhaps belongs to the next section than to this, which properly deals with roofed structures. It is a terraced mound of masonry which rises at the centre of a large circular enclosure having three gateways towards each of the four cardinal points, twelve in all (Fig. 5). "Exalted upon this altar of no great height, but by symbolism raised higher than any mountain, the Imperial Pontiff must have felt that he himself was an offering to heaven" (Bonnard).

The astonishing groups of Buddhist temples of Burmah and Java, towering erections of fantastic form, gilt and glittering, are all visions of paradise: the ruins of Pagan alone, described by Yule, are said to include a thousand temples. Of these the predominant type is cruciform and vaulted. One of the most important of these is the Ananda temple, built about the eleventh century (Fig. 7). The main part of this

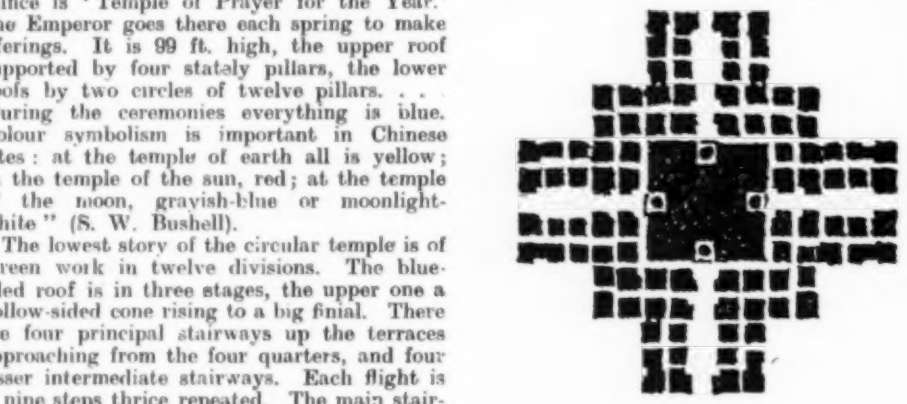


Fig. 7.

is nearly 200 ft. square with projections in the four directions which make it 280 ft. over all. It is of seven stories and over 180 ft. high; each stage diminishes in size so that the whole is pyramidal. In each face of the solid central mass is a niche containing a statue of Buddha 30 ft. high.

The temple at Boro Boddor in Java is perhaps the most amazing of all. It is a low-terraced pyramid measuring about 400 ft. across. On each terrace is a range of buildings with spires and cupolas of the most various and fantastic shapes covering no less than 436 niches containing life-sized statues of Buddha. At the apex and centre of the whole was the principal tope or pagoda which no doubt contained a relic of Buddha.

. . . . . .

Our western architectural methods of designing whim-works in the sham styles can hardly compete with such symbolical art; common sense is the only way open to us. Those ancient works were imitations of paradise, ours are exercises in commercial "grandeur" and advertising vulgarity. Design must have some motiving *idea* in it: what idea can we modern people think except perfect structure for reasonable service?

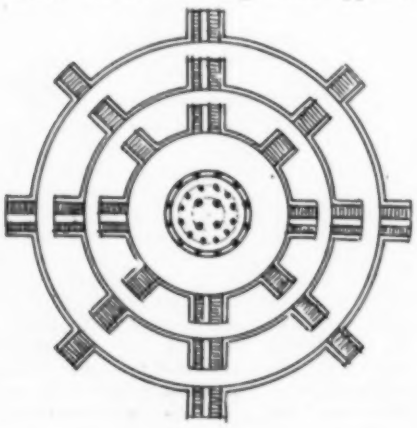


Fig. 6.

THE BEDFORDSHIRE CHURCHES

At the time of the Roman occupation of Britain the tract of country lying between Ermine Street and Watling Street, and divided by the River Ouse, was sparsely populated. History does not reveal any traces of Roman British Christianity. Passing to the middle period of the Dark Ages, about the 7th century A.D., it is probable that the country was divided between the two kingdoms, Mercia and Wessex, the Ouse forming the boundary. The people at this time were probably converted to Christianity by monks of the Roman School from Wessex, and Scotic monks devoted to the evangelising of Mercia. At the time of Offa, 757, 96 A.D., Bedford was an important town, and it is significant that the earliest signs of church life were connected with Bedford and Luton.

Before the Conquest there were no great religious houses in the country, neither were there chroniclers interested in its history. In the ninth century it is conjectured that nearly all the timber-built churches then existing were plundered and destroyed by the Danes. In later Saxon times some churches and towers were rebuilt. Domesday Survey mentions four—Luton, Houghton Regis, Leighton Buzzard and St. Paul's, Bedford. Later rebuildings and additions have almost completely obscured the Saxon structures. At the close of the thirteenth century the total number of the churches in the county was 115, as well as seven in the town of Bedford.

The church history of Bedfordshire begins with Domesday Survey, when important manors and lands were claimed by religious houses, as well as by the Bishops of Lincoln. Many of the great monasteries were now in being, and each claimed a share. The Bishop of Durham held a small portion of land, the Abbots of St. Edmundsbury, Peterborough, Romsey, Westminster and Thorney, as well as the Abbess of Barking, and the Canons of St. Paul's had grants. This is one important link in the history of the county churches. Another link is seen in the granting of a large majority of the parish churches to local monasteries, either at their foundation or later. The divisioning concerned the priors of Dunstable, Chicksands and Newnham. For its size the county was unusually rich in religious houses at the close of the 12th century.

It is clear that the organisation of the church and its parochial administration was due to Theodore, Archbishop of Canterbury. Church design was not a haphazard affair, the churches were built according to plan, embodying existing foundations, and were added to or altered as the needs of a parish developed.

For this reason the story of the Bedfordshire churches is the story of the unification of the manorial and parochial systems. It is also clear that the ecclesiastical architects trained in the monasteries extended a great system of church building from Rome through Western Europe. In consequence Guilds of Artificers were encouraged to interpret the designs which emanated from the religious houses. By the time of the Reformation about half of the livings of England and Wales had become impropriate to monasteries, cathedrals and chapters.

Religion found a handmaiden in architecture and great thoughts were conveyed to the eye in sculpture, stained glass and structure. After the Reformation the great tithe was not restored to the parishes, but was granted to laymen with the Abbey lands. By this perversion of the ancient endowments the fabric of the churches suffered neglect, and for four centuries the churches have been subject to casual patching and infrequent repair. Fortunately the hand of the "restorer" passed over the unique churches of Bedfordshire.

It can be said that the decay of the county churches dates from a period before the visitation of Cardinal Pole in 1556. In the reign

of Queen Elizabeth the ruin began to be conspicuous, a few were patched in the early seventeenth century, but when, at the time of the Civil War the whole country became Presbyterian few cared much about the structural integrity of religious buildings.

In the Middle Ages.

Although the building of churches was controlled by the monasteries and cathedral administration, the major portion of the funds was provided by trade. The social position of the mediæval merchant was high; trade was not considered mean. The King, the monks, the priests, the traders, and the peasants commingled, and, although class distinction existed by custom and birth, the Church united all.

The extent to which social influences were aiding church work is seen in the establishment of the guilds and fraternities. Every guild had its altar where a priest was maintained. The guilds had funds set apart for distribution to the poor and other charitable purposes.

Regional Disposition.

Coming to an analysis of the regional characteristics, there is first the relative position of the county divided by the Ouse and surrounded by Hertfordshire, Cambridge, Huntingdonshire, Northamptonshire, and Buckinghamshire. The chief architectural influences came from Lincoln, Ely, Cambridge, St. Albans, and Oxford. The central position of the county attracted the characteristics of similar buildings in the counties surrounding it. The materials available for building included Totternhoe stone from the quarries owned by the abbots of St. Albans, sandstone from local quarries, clunch flint, rubble, and tiles. South of the Ouse the majority of the churches have square towers; there are 103 of this type in Bedfordshire. The churches with spires number 11, and they form a crescent from Leighton Buzzard to Poddington and thence to Eyeworth. Three of the churches are of lesser cathedral status—*i.e.*, Luton, Leighton Buzzard, and St. Paul's, Bedford. Although the churches of Bedfordshire represent the whole evolution of English Gothic, Saxon, Norman, Early English, Decorated, Perpendicular, and early 17th century Gothic, the detail is essentially local. In no other part of England, with the exception of East Anglia and Somerset, do churches exist with so many unique features. It can be said that the churches of Bedfordshire are unsurpassed for rich simplicity of detail.

Need for Repair.

Down to the time of the Reformation the Bedfordshire churches had had the support of the Church and had been helped by trade. From that time to the present they have been subjected to neglect, owing to lack of funds and an unwillingness to regard them as national monuments. The whole aspect of trade and agriculture had changed. Bedfordshire was neither a residential nor an agricultural county. In many respects it lacked the advantages of Hertfordshire.

Examination by experts had shown two things—first, the churches were models of architectural style; secondly, they were worthy of preservation. That they were in a bad way and needed immediate repair was a matter affecting the whole county. It was a responsibility which had to be shouldered by all. Funds were needed not to restore but to repair these magnificent structures. The best talent the country could find had to be engaged to effect the very necessary repairs to roofs and walls. In this way it was hoped to hand the churches down to posterity in practically their original condition. It was a duty not to interfere with history, but to hand its pages on unsullied by specious half-truths. When we consider the beauty of the churches, the splendid towers, spires, wall paintings, timber roofs, screens, and other features, it becomes imperative to check the ravages of time and neglect.

LEGAL QUESTIONS WE HAVE BEEN ASKED—IV

By W. T. CRESWELL, Barrister-at-Law, L.R.I.B.A., Associate (late Fellow) Surveyors' Institution, etc.

WHAT IS THE REMEDY OF THE BUILDING CONTRACTOR IF THE EMPLOYER NEGLECTS TO MEET THE CERTIFICATE OF THE ARCHITECT?

GENERALLY there is provision, either by express words or by implication, in building contracts that the architect's certificate, whether interim or final, shall be a condition precedent to any payment; and the onus is put upon the contractor of obtaining the certificate on which his right to payment thus depends. Once a certificate for an instalment is obtained from the architect the general certificate becomes a liquidated demand creating a *debt due* from the employer to the contractor and entitling him to immediate payment; subject only to the terms of the contract or any special right which may be reserved to the employer thereunder; for instance, the right of holding the amount certified as a set-off or counterclaim in respect to liquidated damages. Further, on completion of the work contracted for, payment is due automatically to the contractor for the balance of the contract price, subject to any terms of the contract which postpones any portion or proportion thereof; for example, the maintenance clause which provides that the employer shall retain a specified sum during the term of maintenance following completion.

The contractor, in deciding if, and when, there is any debt due to him, must consider whether his employer is an individual or a corporate body, and inform himself of any statutory restrictions bearing on the manner in which such a body can enter into contracts.

Payment of Variations.

Where the contractor carries out any variations involving additional labour or materials, and these have not been the subject of a *written order* by the architect (the contract providing that there shall be a written order), the contractor is not entitled to payment for such additional work excepting as may be determined and allowed at the final adjustment of accounts, and therefore it follows that in calculating the amount due to him at any previous juncture, he is not entitled to consider the amount certified by the architect's last progress or interim certificate as including any payment for such additional works. That is to say, he may not "appropriate" any part of the amount certified to such additional works. If, however, any particular contract fails to provide for the architect's order *in writing*, then, probably, the contractor could "appropriate," that is to say, consider the amount certified as referring to the whole of the work ordered and carried out.

Employer's Delay in Performing Covenants of the Contract.

If an employer delays to perform his covenants under the contract he is liable in damages to the contractor. So if the employer neglects to meet the certificate of his architect, or renders himself incapable of carrying out the contract, then the contractor is, no doubt, entitled to abandon the work altogether, at whatever juncture this state of things arises, since there is a breach that goes to the root of the contract. He may sue the employer for the work done, materials supplied, and loss of use of his plant. Of course, in taking this step the contractor takes the risk if he acts capriciously or without sufficient evidence, that the employer cannot actually complete payment, etc.

The contractor in most cases is well advised to continue with the work whilst taking any legal action for payment of the amount due, because it must be remembered that usually a lawful binding contract can only be rescinded by the consent of *both* parties thereto; and though it is also a general rule that where one of the parties repudiates or abandons the contract the other party may, if he pleases, treat such action as a rescission of the contract and sue upon it at once, nevertheless the attitude of the Court to his suit will be influenced by the value of the breach caused and by the length of the period of unexpired time. The Court may decide that the action was taken precipitately or prematurely. There is always the chance that the employer's failure to pay may only be due to some temporary misfortune from which he may shortly recover. Of course, if nothing is due to the contractor on account, and the employer refuses therefore to pay anything on account, that is not a rescission or abandonment of the contract by the employer.

Incapacity of Employer to Pay.

In all cases where the breach does not go to the root of the contract the contractor should invariably complete the work and then sue for the contract price and damages, if any, in addition. But it may be within the knowledge of the contractor that there is the *intention* on the part of the employer to abandon the contract; or that there is incapacity on the part of the employer to pay as evidenced by his acts or conduct. In either case, the contractor has to decide whether he will treat it as a *partial* breach (when he will complete the work and sue for damages), or as a breach going to the root of the contract, and take the risks enumerated above by abandoning the work altogether and suing on the contract.

In Freeth *v.* Burr (1874), L.R. 9, C.P. 208, Lord Coleridge, C.J., said "The principle to be applied in these cases is, whether the non-delivery or the non-payment amounts to an abandonment of the contract or a refusal to perform it on the part of the person so making default."

Ownership of Materials, etc.

It must be borne in mind that when materials, etc., are built into the land by the contractor they, under the rule *Quicquid plantatur solo, solo cedit*, become the property of the employer, and the contractor holds no lien upon them for non-payment by the employer.

Finally, the question we set out to answer is not an easy one. The contractor has in any of the circumstances reviewed a difficult problem to face; and it may be that he will see to it that at an early stage advice is sought as to the action he should take in order to steer a clear course between Scylla and Charybdis.

STONEWORK AT THE HOUSES OF PARLIAMENT.

THE Special Committee of the L.M.B.A. concerned with this matter, after studying the Memorandum on the Defective Condition of the Stonework at the Houses of Parliament as presented to Parliament, and the official report of the Parliamentary Debate on the motion for defraying the costs of the repairs to be carried out, made arrangements to visit the Houses of Parliament. The members of the Committee were personally conducted over the buildings by Sir Frank Baines, and were afforded every facility for inspecting the defective stonework. This inspection impressed the members of the committee with the very difficult problem facing the Office of Works, and after carefully considering the various questions connected with the proposals for the restoration as outlined in the memorandum, the Committee again visited the Houses of Parliament and inspected the stonework generally under the guidance of the clerk of works and carefully noted the pinnacle to the New Palace Yard front which has been reproduced in Stancliffe stone. The Committee afterwards visited the Land Registry Office in Lincoln's Inn Fields, where Stancliffe stone has been exposed to the London atmosphere for about twenty-five years.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting?—ED.

Contract Question.

SIR,—I should be glad of your advice on the following matter :—

A fixed date is agreed on for the completion of the building of a house. After the contract is signed and the work commenced, various alterations and variations are introduced and carried out; patent wall coverings are used in lieu of plaster, oak floors in lieu of deal, oak in staircase in lieu of deal, and the doors and linings are purchased by the client, involving the enlarging of openings and many other smaller additions. Does the original date stand or not?

CONSTANT READER.

Lifts.

[REPLY TO "MERCHANT," JANUARY 20.]

SIR,—Your correspondent's query depends for an answer very much upon the price of current for power in the neighbourhood concerned. With cheap current the electric lift can compete with all types for heavy work, but if current is dear, an hydraulic lift may prove the more economical in running for very heavy goods work.

ELEVATOR.

Cubing.

SIR,—The number of large buildings which are constructed on reinforced concrete rafts, in lieu of carrying down foundations to a firm bottom, appears to be on the increase. What should be the method of measuring such buildings for an approximate estimate by cube? It is obviously unsound to measure from the top of the concrete, since it is of considerably more expensive nature than ordinary concrete, and it is also obviously erring on the other side to measure to the approximate depth that would be occupied by normal footings, since the arrangement is designed for economy over other methods. Has this matter received official consideration? It appears to be important since so many competition schemes depend for their award largely upon a question of cost, based on measurement by cube.

CUBIST.

Damp Stains on Inside Wall.

[REPLY TO "G. B. P.," JANUARY 27.]

SIR,—I think there is no doubt that the stains are caused by the gas fumes. Some years ago I had the same experience in an old house I purchased. I had a gas circulator fitted in the basement kitchen and the vent connected to the flue from the range. A plumber who had worked for a very well-known firm in the West End told me he had known of other similar cases. On his advice I attempted no remedy, but perhaps your correspondent might strip off the damaged plastering and replace with Portland cement rendering.

F. J. FORSTER, A.R.I.B.A.

SIR,—The reason of the damp patches in question is probably because the kitchen chimney is not used as such. Possibly if a coal fire were used, this would dry up any moisture or damp which finds its way down the chimney and collects in the gathering of the flues. The gas-cooker and gas-circulator do not give sufficient heat to absorb the moisture which finds its way through the brickwork. The patches should be cut out and re-rendered with damp-proof compound, and if the brickwork is charged too much with damp, it should either be cut out and rebuilt with new dry bricks or dried by means of a blow-lamp.

FRANK JAY.

Testing "Made" Ground.

SIR,—I am erecting a steel-framed building on made ground which has stood about 20 years or more. An average load on a stanchion is about 200 tons. Could you tell me of a practical test to make on the ground to find its bearing capacity?

J. R. G.

Roman Catholic Churches.

SIR,—I should be glad to get in touch with any standard works describing such Roman Catholic ritual and practice that affects the planning of churches for this Communion. I believe there are certain fixed arrangements for such things as the number of steps to chancel and sanctuary, and similar features of which I am not informed.

UNINFORMED.

Standard Sizes of Bricks.

[REPLY TO "BRICKS," JANUARY 27.]

SIR,—I am afraid it would cause something like a revolution in the brick industry to alter the present standard size of brick to 2 in. just because some people have a fancy for that size. Beyond a doubt they make very neat and fascinating brickwork, and all manner of designs and patterns can be made with them. They are largely used in the U.S.A., where the standard brick in Michigan and Illinois is 8 in. by 3½ in. by 2¼ in., and in New York City, 7½ in. by 3½ in. by 2 in., although other sizes are used according to the style, design, and class of building. If the bricks were made longer to make up the equal bulk of the English standard brick, the only bond that could be used to be effective would be that termed in U.S.A. "repressed" Roman size. I do not think bricklayers would make any allowance for this output in laying bricks of a smaller size. A brick of whatever size is a brick to them, and I rather think their contention would be that it takes as much time and attention to lay a smaller size brick as a larger one.

FRANK JAY.

LAW REPORTS

CHANCERY DIVISION.
(Before Mr. Justice Tomlin.)

Ancient Lights Action.
Griffin v. Clisby.

In this action Mr. Harold Griffin, a surveyor, of Chilterton-road, Tooting Bec, sought an injunction to restrain the defendant, Mr. E. T. Clisby, of Frith-street, Soho; from building at 29, Montpelier-place, Knightsbridge, London, so as to cause a nuisance by obstructing the lights at the back of 18, Montpelier-road, a house which the plaintiff had purchased from a Mr. Smith after it was known that the defendant had contemplated making extensions to his premises. Mr. Griffin also asked for a mandatory injunction ordering the defendant to pull down.

Mr. Millard Tucker appeared for the plaintiff, and Mr. R. Fortune for the defendant.

The facts of the case sufficiently appear from the following judgment.

Mr. Justice Tomlin, in giving judgment, said the sill of one of the plaintiff's windows was just above the yard level. There was a light in a door beside it, and a window on each of the three floors above. The front of the house was somewhat dark, being overlooked, but the back part was light until this wall went up five times as high as a previous 6-ft. wall. In February last Mr. Roberts, the defendant's surveyor, communicated with Mr. Smith and sent to his agents a party-wall notice. There were further notices and an amended notice, and when the plaintiff bought the house the title to damages for possible obstruction was transferred to him. When, upon the counter-notice, surveyors were appointed to deal with the difference, the defendant was not entitled to proceed to remove the old wall or build in its place until the matter had been adjudicated. When Mr. Griffin went to see the statutory tenant he was astonished to find the new wall up. The building had been erected before the expiry of the statutory notice under the Act. The defendant's answer to a claim for mandatory order was that the plaintiff had been "lying by." His Lordship had been to see the house. The defendant's wall was 28 ft. high, at a distance of 10 ft. The light to the two upper windows was not diminished, but the staircase light had become insufficient. For kitchen uses the kitchen would now require artificial light. The defendant said the Court should merely order damages. His Lordship did not think so. The damage was of such a kind as to alter the character of the house.

His Lordship found that a case of nuisance by obstruction of light having been made out, the plaintiff was entitled to a mandatory order for the reduction of the offending building to such an extent that no nuisance would be occasioned. He made a declaration to that effect, and counsel must consult to see whether the parties could agree as to the extent of the pulling down. After that the ultimate form of the order could be defined. If the parties could not agree the Court itself would appoint a surveyor. Plaintiff would have the costs of the action.

Judgment was entered accordingly.

KING'S BENCH DIVISION.
(Before Mr. Justice Mackinnon.)

Action by Architects for Breach of Contract.
Lanchester, Lucas and Lodge v. Weybridge Urban District Council.

In this case Messrs. Lanchester,, Lucas and Lodge (formerly Lanchester, Rickards and Lucas), architects, sought to recover from the Weybridge U.D.C. damages for alleged breach of contract in connection with their employment by the Council for a housing scheme.

Mr. Graham Mauld, for the plaintiffs, said by writing under seal of January 5th, 1920, the defendants employed his clients to carry out the lay-out scheme of their Old Palace Gardens estate for the purpose of erecting houses for the working classes, and as architects for the erection of such number of houses as from time to time should be determined by the Council. Plaintiffs accepted the appointment and prepared a lay-out scheme, and they also prepared specifications of houses that were intended to be built, and did a great deal of work negotiating with the defendants and the Ministry of Health and various contractors. Ten houses of the one hundred intended to be built as an instalment were actually erected, and later plaintiffs received instructions to proceed with the erection of 47 houses, and these were now being built. In June, 1926, however, the Council employed other architects to erect 100 houses on the estate, which were additional to the ten and the forty-seven, and it was of this that plaintiffs complained as a breach of contract.

For the Council it was contended that plaintiffs' appointment related to houses erected under the Addison scheme, and that it came to an end on the termination of that scheme. They denied any breach of contract.

Mr. Justice Mackinnon, in giving judgment, said there was nothing in the wording of the plaintiffs' contract to limit it to the erection of houses under any particular scheme or any particular Act: it was in clear terms quite generally for the erection of such number of houses as might be determined by the Council from time to time upon the Old Palace Gardens land. He also did not agree with the Council that plaintiffs' contract had been mutually cancelled. Plaintiffs, therefore, still had the right to act as architects for any houses the Council might determine to erect in June, 1926, when they employed the other architects to erect 100 houses. The claim for damages must succeed, and he awarded them £650.

Judgment accordingly.

THE BUILDING TRADE

BUILDING OPERATIONS AND COLLATERAL SECURITY

BUILDING operations require ready money, and when that is not immediately available, the raising of money by giving security is sometimes resorted to; and the money can be raised on two kinds of security: either upon chattels upon the premises, or by a mortgage of the land and premises themselves; but sometimes both these kinds of security are offered, and then the greatest care must be exercised in drawing the forms of charge, as confusion may easily arise, as is shown by the recent case Stott and Another *v.* Shaw and Lee at present only reported in the *Weekly Notes*, January 14, 1928.

In 1910 one Thornley bought from one Stott (the executors of whom were the plaintiffs in this action) some land, and he had further borrowed certain sums from Stott which had been expended in building a laundry upon the land. In 1913 Thornley owed Stott £1,000, which was secured in part by mortgages of the land and laundry premises, and in part by a bill of sale of the chattels upon the premises. In June, 1925, a further loan from Stott to Thornley of £600 was arranged, on condition that a new mortgage and a fresh bill of sale should be granted comprising that sum as well as the sums already owing. The £600 had not been paid to Thornley personally but to a creditor of his at the request of Thornley.

In pursuance of the agreement on July 1, 1925, a bill of sale was given by Thornley, in which it was provided that in consideration of the sum of £1,600 paid by Stott to Thornley on June 24, 1925, Thornley assigned to Stott, his executors, administrators and assigns the chattels on the said premises as security for the payment of the £1,600, and Thornley undertook to pay the principal sum with interest on December 24, 1925. On the same date also, in pursuance of the above agreement, an indenture of mortgage was executed whereby it was provided that in consideration of the sum of £1,600 paid by Stott, the mortgagee, to Thornley, the mortgagor, on June 24, 1925, the mortgagor thereby covenanted with the mortgagee to pay to him on December 24, 1925, the sum of £1,600 with interest, and that subject to the right of the mortgagee to require repayment of the principal sum on December 24, 1925, or at any time thereafter, the principal money should be repaid by instalments in certain amounts at periods named. It will be seen those documents included the advance of £1,000 really made before this date.

Stott died December 10, 1926, and on January 21, 1927, Messrs. Shaw & Lee, creditors of Thornley, recovered judgment against Thornley, and under a writ of fi fa seized the chattels on the above premises to satisfy their debt of £157 and upwards. In interpleader proceedings in the County Court the executors of Stott claiming under the bill of sale were made plaintiffs, and Shaw and Lee, the execution creditors, defendants. In the County Court judgment was given for the plaintiffs, and the execution creditors appealed to a Divisional Court.

Two points were re'ied upon by the defendants, the execution creditors, as making the bill of sale void: (1) That under section 8 of the Bills of Sale Act, 1882, the consideration was not duly stated since it stated that the consideration was £1,600, whereas only £600 of that sum had been paid on the date named in the bill June 24, 1925, and (2) that the registration was void under section 10, subsection (3) of the Bills of Sale Act, 1878, because it had been "made or given subject to a defeasance or condition . . . not contained in the body thereof," the ground of this objection being that the bill of sale provided for repayment of the money on a certain date, whereas the collateral mortgage gave the grantor the right to pay by instalments, subject to the right of the grantee to require repayment on the same date as that named in the bill.

The report states that the Divisional Court, not without hesitation, dismissed the appeal.

On the first point the Court held that, although no money had in fact been paid by the grantee to the grantor on that date, it was clear that the sum mentioned was due from the grantor to the grantee, and the bargain between the parties was that it should be treated as the sum in respect of which the bill was given, and thus the consideration was stated with substantial accuracy according to its legal and business effect (Credit Co. *v. Pott*, 1880, 6 Q.B.D. 295).

The second point was that which probably gave the most difficulty, but the Court held that there was not a defeasance or condition which would render registration void, for although the mortgage gave the grantee a right to sue for instalments if he did not require payment on the date named, it did not interfere with his right to require payment on that date or affect the right of the grantor to redeem or the right of the grantee to seize, and thus did not substantially alter the bill of sale. The Court distinguished the case of Edwards *v.* Marcus (1894, 1 Q.B. 587). There a husband and wife had given a bill of sale on certain chattels to secure £300 and simple interest, but on the same day and to secure the same debt the wife had mortgaged a reversionary interest for the same sum and with interest at the same rate but compound and not simple interest. As in the case we are considering both instruments were part of the same transaction, and the Court of Appeal held that this was a condition which should have appeared in the bill as it affected the position of the grantors, for the debt could not be discharged until the grantee had been paid compound interest under the mortgage given by the wife. In the same case it was held that any condition prejudicial to either the grantor or the grantee was within the meaning of the section.

These points may appear technical, but they are of great importance, as in connection with such transactions, third parties, such as execution creditors, come in, and where two forms of security are offered, one of which is a bill of sale, care should be taken that any condition which may affect the position of the parties as regards the security duly appears in the bill of sale.

The Year's Building: Sheffield and Manchester.

The Sheffield City Architect's report upon building developments is made up to the end of March in each year. The figures for the period ending March, 1927, showed that 2,714 houses had been erected for the 12 months under review. During the eight subsequent months 1,423 further houses were completed and it will thus be seen that there has been a considerable falling off in the rate of building. The best month was in September, when exactly 300 houses were completed. For November the figure fell to 76. At a recent meeting of the Manchester Improvement and Buildings Committee it was announced that the estimated cost of the building operations sanctioned by the Committee from November 1, 1926, to October 31, 1927, was £2,962,255, a figure which represents an appreciable increase in the rateable value of the property within the city area. The buildings approved by the Committee included 3,366 houses.

INDUSTRIAL STATISTICS, 1927

THERE was a marked similarity between industrial conditions at the commencement of the year 1926 and those prevailing at the present moment, that is to say, there were signs in 1926 that an improvement might be expected if no untoward events occurred, and all hands would unite and man the pumps and assist in bringing the vessel of State, battered by the war, safely into port. Untoward events, however, did occur in the form of the general strike, lasting nine or ten days, and the coal stoppage, lasting nearly seven months, and the hopes of improvement held out until May of that year were dispelled, and the trade of the country received a set back from which many people thought recovery would hardly be possible. The pessimists, however, were mistaken, and it surely is a testimonial to our industrial system that in the period we are about to review, which covers little more than 13 months since the termination of the coal dispute, the country stands in as favourable a position, if not in a more favourable position, than it did in 1926, before industrial troubles came to a head. The loss of capital and of trade, impossible to estimate, and the loss of working days amongst the disputants, 162,230,000 working days, have set us back a year, or may be much longer in the future, but we have regained our feet and are once again plodding on the upward incline. Was it only our footing that we lost and not our senses? We have said that there is a marked similarity between conditions prevailing early in 1926 and those prevailing now, but there is an equally marked difference. In 1926, unrest and discontent with economic conditions fructified into strife, but in the midst of the coal stoppage the first helpful note was struck by the President of the Trade Union Congress, Mr. George Hicks, at the Congress, when he first pointed out that employers and trade unionists alike recognised that the toilsome and difficult period we were passing through was merely transitional, and much fuller use could be made of the machinery for joint consultation and negotiation between employers and employed, and advocated a direct exchange of views between representatives of the great organised bodies which should bring both sides face to face with hard realities and, moreover, advocated this course in face of any allegations which might be made that essential principles of trade unionism might be sacrificed. It is now common knowledge that Sir Alfred Mond, acting upon this suggestion on November 23, in a letter to Mr. Citrine, while explaining that no single organisation of employers existed which could take the initiative, as representing a representative group of some 24 employers invited the General Council of the Trade Union Congress to meet them in conference, that this invitation was accepted and that at the present time representatives, who it is estimated, represent £1,000,000,000 of capital, are in conference with the General Council of the Trade Union Congress discussing such questions as the effect of national taxation and rates upon the development of industry; the causes of trade disputes and the best way of avoiding them; participation in the proceeds of industry on the basis that the worker is not merely entitled to a fixed percentage or wage, but interested in the general prosperity of his industry; the creation of some Permanent Standing Committee to meet for consultation from time to time on topics affecting industry.

We think, therefore, we are correct in saying that if there is a resemblance between the actual economic conditions at

the present moment and those prevailing before the general strike, there is a marked difference in the attitude of those concerned in industrial problems, and that hope for the future may be derived not only from the statistics of the past year but from a spirit of peace in industry. In place of the 162,230,000 working days lost from stoppage of work owing to trade disputes in 1926, we find in 1927 but 1,180,000 working days lost, the smallest number recorded in the whole period of 40 years for which statistics are available.

Unemployment.

Turning now to the statistics for the year we will commence with unemployment. The figures require careful analysis to obtain true results, owing to one or more disturbing factors. The *Labour Gazette* states that the outstanding feature of the employment situation in 1927 was that in spite of acute depression in some important industries the average number of persons actually in employment reached a higher level than in any previous year, whilst the average annual percentage rate of unemployment among insured persons fell to a lower level than in any year since 1920, when the scheme of unemployment insurance was extended. The annual percentages are given as under:—

1921, 17 per cent.	1925, 11.3 per cent.
1922, 14.3 ,,	1926, 12.5 ,,
1923, 11.7 ,,	1927, 9.7 ,,
1924, 10.3 ,,	

1921 and 1926 were years in which there were disputes in the mining industry, and in those years the persons excluded from unemployment benefit by reason of trade disputes in that industry are omitted from the above table.

It is a significant fact that in 1926, taking the figures for April, immediately before the great trouble from disputes began, the percentage of persons wholly or temporarily unemployed was 9.4, or very nearly the annual average for 1927, those percentages including the coal mining industry. From that date the percentage rapidly rose, and we find that it was not until April, 1927, that it had again fallen to the same level, viz., 9.4. The significance we attach to these figures is this—that while in some quarters blame is laid upon the industrial system or upon the Government for the present condition of unemployment, the figures show that industrial disputes were the real cause, and set back employment some twelve months.

The total number of insured persons whose unemployment books were lodged at employment exchanges on December 19, 1927, was 1,194,305, a decrease of 237,535 as compared with December 20, 1926, and of 48,782 as compared with December 21, 1925, but the *Labour Gazette* states that the improvement in employment is not truly indicated in these figures, since the increase in the total number of insured persons was 239,000 between July, 1925, and July, 1927, or 90,000 in the twelve months July, 1926, to July, 1927. We also gather that if the coal mining industry was excluded the figures would be more favourable as regards the percentage of unemployment.

Rates of Wages.

In the space of this article it is impossible to give an accurate account of the changes of rates of wages, owing to the many classes excluded from the statistics and other considerations. We therefore must content ourselves by saying that in the industries for which statistics are available the changes reported during the year resulted in an aggregate net reduction of £389,000 in the weekly full-time wages of over 1,850,000 workpeople, and in a net increase of £30,400 in those of 280,000 workpeople. Possibly the best idea of the subject is given in a summary in the *Gazette*, which states that from all the information in the possession of the Department, it would appear that at the end of 1927 the weekly full-time rates of wages of those classes of workpeople for whom particulars are available, including agricultural labourers, were between 70 and 75 per cent. on average above the level of the corresponding rates for August, 1924, compared with 75 per cent. at the end of 1925. This makes it necessary to consider the cost of living, as this bears on the value of wages, and in certain industries reductions or increases are regulated by cost of living and other sliding scales.

Cost of Living.

The mean percentage increase over the level of July, 1914, appears to have been 67½ for all items as compared with 72 per cent. in 1926, so where full-time rates of wages are obtainable the decrease in the cost of living would appear to put the wage earner in a slightly better position, despite any fall in the rates of wages.

Hours of Labour.

18,650 workpeople had an average increase of 3.5 hours per week, and 1,650 a reduction of 4.7 hours per week, this representing an aggregate net increase in weekly hours of 59,000. In 1926 the aggregate increase in weekly hours was 3,985,000; 934,000 workpeople having their hours increased and 340 their hours reduced.

Trade Disputes.

We have already alluded to the reduction in trade disputes, but the figures are so striking, as well as gratifying, that we must refer to them in some detail. The number of disputes causing stoppages of work was 303, the smallest number ever recorded in the 40 years covered by the statistics, but this figure alone is not significant, as in 1926 the number of disputes was but 323, but they directly involved 2,724,000 workpeople, and 10,000 indirectly, and the loss of working days was the highest ever recorded, 162,230,000. The 303 disputes of 1927 but directly affected 89,000 workpeople and 18,000 indirectly, and the loss of working days was but 1,180,000, again the lowest ever recorded. All the figures create a record, and we trust it may be a record yet to be beaten. The stormy events of the last few years culminated in a loss of wages and working days in 1926 which exceeded any previous years, but it is to be hoped the loss has impressed all classes with the necessity of a spirit of conciliation in all walks of life, industrial or otherwise. In this connection a feeling is growing up that some interest in the industry they are engaged in should be given to the workpeople employed, and much has been written and said about schemes of co-partnership. There is one aspect of this question which appears to us to require consideration. The trade unions consider the weapon of the strike an essential one, at any rate to have in reserve, even if it is only to be used as a last resort, and as has been known ever since the Lever Case, they have frankly admitted that such co-partnership schemes as have hitherto been adopted or suggested tend to sap the loyalty of their members. The reason of this appears to be that in such schemes the portion of the profits assigned to the men usually takes the form of shares or investment in the undertaking, and the men in the event of an industrial dispute are anxious as to the position of their shares. It may even be that one of the underlying objects of some of these schemes has been the attachment of the men to a particular undertaking. If greater confidence is to be inspired between employers and employed it appears that the present objection of the trade unions to co-partnership schemes could be met were the profits assigned to the men to be paid out to the men in cash at as frequent intervals as the profits can conveniently be ascertained, leaving the men free to invest or spend such sums at their own discretion as any other shareholder. We make this suggestion with some diffidence merely to receive consideration by those engaged in industry, because, although it appears to be generally admitted that co-partnership affords one of the best means of securing co-operation and stimulating both good feeling and increased output, so far the objection raised by the trade unions as to its effect on the ultimate right to strike appears hardly to have received sufficient attention.

The Building Trade..

No useful statistics can be derived from the *Labour Gazette* in regard to the building trade in particular, as in most of the tables it is not dealt with exclusively, but grouped with allied industries, and the returns have never been very complete, but 1927 appears to have been a year without particular incident, except the weather, which, of course, was very bad for the trade in December, although the householder may read with grim irony that with plumbers December was not so slack as the December of 1926.

The building trade during the past few years has occupied a position by itself, as it has indirectly been subsidised in connection with the subsidising of houses, and the shortage of houses found the trade understaffed, so when other trades were slack and disorganised, it had its hands full to supply the national needs, and it is unnecessary to say here with what success it has fulfilled that task. As regards the building trade, the eye has rather to be carried forward than directed to the statistics of the past, and the question is, what will be its future? With the reduction of housing subsidies and the supply of houses approaching the demand, it can hardly expect to be kept at the high pressure it has worked under since the termination of the war, independent of general economic conditions, and it may be more subject to fluctuations. But one thing seems certain, and that is, that its prosperity will depend upon the prosperity of the community as a whole. Arrears of housing have still to be made up, and if a recovery of trade should now begin to set in, there should be plenty of work for the building trade in the future. When the housing problem is finally solved, if money is more plentiful, the insanitary areas will call for the first attention, and the demolition and reconstruction of those areas will not only afford work, but will also tend to continue housing schemes, as the two processes are complementary. Trade has for so long a period not known what prosperity really means that should a real revival take place in trade we imagine a good deal of deferred expenditure on business premises will also take place.

As we have said, there are signs that trade prosperity may return; the latest figures relating to exports are very satisfactory, and the way the nation has made good since the disastrous events of 1916, is another indication of great vitality, but goodwill between employers and employed is the only atmosphere which can encourage growth, and if we set our minds to improving our own industrial system and let others experiment with chimerical ideal states on a communistic and socialistic basis, we cannot but think that a happier era lies before us than we have experienced for many years past.

Empire Timbers.

An exhibition indicating the possible utilisation of Overseas Empire timbers in industry will be held at the Exhibition Pavilion of the Imperial Institute from February 3 to April 30. This exhibition is the second of a series arranged to direct attention to specific resources of the Empire with the object of increasing the usage of Empire raw materials in this country. Samples of selected timbers from some of the Dominions and Colonies will be shown in conjunction with the articles which can be made from them. The exhibition will be of special interest to architects, builders, cabinet makers, etc. An important feature of the exhibition will consist of exhibits illustrating the work carried out at the Imperial Forestry Institute, University of Oxford; the Forest Products Research Laboratory (Department of Scientific and Industrial Research) at Princes Risborough; and at the Imperial Institute.

EVERYDAY SCIENCE FOR ARCHITECTS AND BUILDERS—IV

By A. M. GILES, B.Sc., A.I.Struct.E., A.M.I.E.E.
DIAGRAMS AND ILLUSTRATIONS BY M. R. DUMVILLE.

HYDRAULICS—(*continued*).

IT is a common saying that "Water finds its own level." The truth of this can be demonstrated by a very simple experiment. Several vessels of different shapes and sizes are arranged so that they may be in communication with one another by a pipe joining their bases. Now pour water into any one of them. It will flow along the communicating pipe and rise in each vessel. After you have finished emptying water into one of the vessels, it will be found that it is at the same horizontal level in each vessel.

This applies to all bodies of water wherever there is a direct communication between them. In a water installation the water in the pipes will try to reach the same level as that in the cistern or reservoir. It therefore follows that, before any heat is applied, the water in the expansion pipe is level with the water in the cistern, and consequently one must always make sure that the expansion pipe rises well above the water in the cistern.

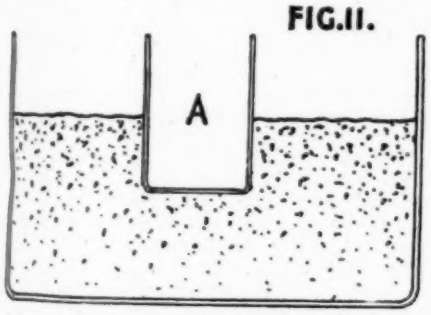
Experiment.

We can illustrate the attempt of water to find its own level by the following experiment (see Fig. 11).

FIG. 11.

A large tub of sand has a light jar *A* packed in it. This is at first arranged so that the top of the jar may be just above

FIG.11.



the level of the sand. Water is then poured slowly and carefully into the sand. It will spread itself through the sand and try to get to the same horizontal level. There will therefore be an upward pressure on the bottom of the small jar, and this will be sufficient to force it up out of the sand.

Example.—Suppose the basement floor of a house, built in waterlogged soil, is 7 ft. below the water level, and that the floor is 12 ft. by 10 ft. Find the total upward pressure on the floor.

The area of the floor
$= 12 \times 10 = 120$ sq. ft.
$= 17{,}280$ sq. inches.

On each square inch, due to the 7 ft. "head," there is an upward pressure of 3 lb.
Therefore total upward pressure
$= 17{,}280 \times 3$ lb.
$=$ *just over* 23 *tons.*

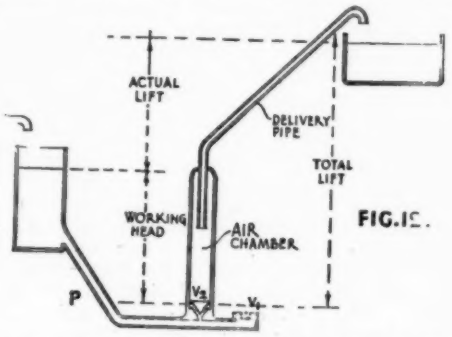
This suggests, then, that when a building is erected on or near waterlogged soil, arrangements should be made to withstand this pressure.

Hydraulic Ram.

Because of the force of gravity, water always flows downhill, and the velocity with which it travels depends upon the gradient, or upon the vertical fall, or "head." Now, moving water possesses energy and this energy can be made to do work. If the flow of water be suddenly stopped, it loses its energy, which, as we have seen in the previous article, exerts a big pressure on the sides of the pipe. If, close to the place where the water is stopped, the pressure can force open a valve, water will flow through it until all the energy has been exhausted. The valve then closes, and the water will flow on again past it, gathering speed and therefore another supply of energy. It is again suddenly stopped and more water forced up through the valve. By a very simple method this process can be continued.

We find it put to practical use in the hydraulic ram, by which a small head of water can raise a quantity of water to a

FIG.12.



considerable height. The principle of the hydraulic ram is shown in Fig. 12.

FIG. 12.

Water flows down pipe *P* under a small working "head." It escapes through valve V_1, the valve V_2 being closed. When the water has reached a certain speed it automatically closes valve V_1 and the sudden increase in pressure opens valve V_2. Water now flows through valve V_2 until the pressure is exhausted, when the air in the air chamber forces down valve V_2, and water again flows through valve V_1, which has, in the meantime, opened. This process is continued, and water is forced up the delivery pipe into the cistern. There is a relation for calculating the delivery of water into the cistern, viz., the number of gallons per minute forced into the cistern equals the ratio of the working head to the total lift, multiplied by half the number of gallons that flow through valve V_1 per minute.

The hydraulic ram is largely used in the colonies, and a case is on record where a working head of 10 ft. has raised water over 300 ft. through three miles of piping.

The Bramah Press.

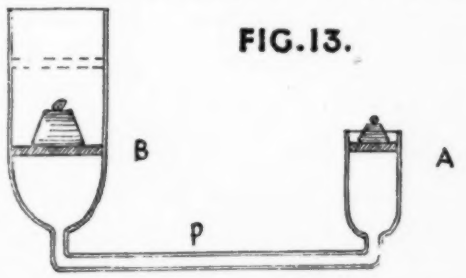
Though water is practically incompressible, it can and does transmit pressure, and this is the principle of the Bramah Press and the hydraulic testing machine.

Experiment.

FIG. 13.

In this diagram (Fig. 13) we have two tubes joined by a pipe *P*. They contain

FIG.13.



water. The area of cross-section of the piston at *A* is, say, one square inch, and the weight on it 4 lb. Therefore we have a pressure at *A* of 4 lb. per sq. in. This pressure is transmitted through the water and is exerted upon every square inch of the piston at *B*. Suppose this area of cross-section is 7 square inches, then there is a total upward pressure at *B* of 28 lb., and therefore to prevent the piston at *B* from moving upwards a 28-lb. weight must be placed upon it.

We conclude from this that if the weight at *A* be larger than 4 lb., then the pressure transmitted to *B* will be larger than 28 lb., and therefore the piston at *B* will be pushed upwards. From this it is an easy step to the explanation of the hydraulic press (the

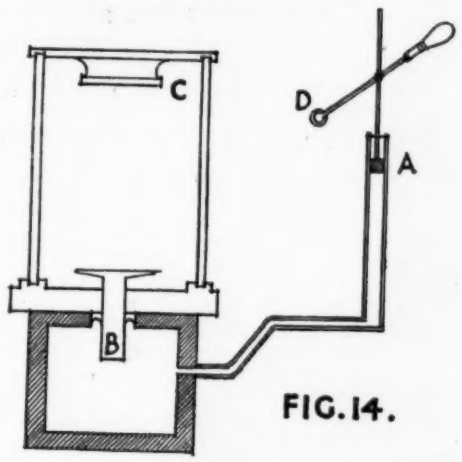


FIG. 14.

Bramah Press), and the hydraulic testing machine; for suppose that above the 28 lb. weight at *B* we have a fixed piston, then, by increasing the pressure at *A* we shall subject the weight at *B* to a compression between the two pistons.

FIG. 14.

In Fig. 14, which is a diagrammatic illustration of the Bramah Press, water is the liquid used for transmitting pressure. The pressure at *A* is increased by means of a lever arm movable around pivot *D*. (The action of this will be appreciated when we deal with mechanics.) This pressure is transmitted to the chamber in which the piston *B* is housed. This piston is forced upwards and compresses between itself and the cross head *C* anything that is placed on the platform. Of course, to maintain the pressure a non-return valve must be placed at the end of the pipe connecting the pump to the piston chamber.

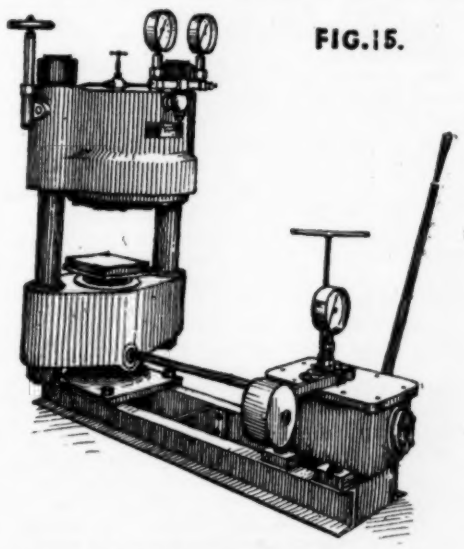
The Hydraulic Testing Machine.

FIG. 15.

This machine (Fig. 15) is used for testing the compressive strength of stones, such as granite, sandstone, or limestone. It is also used for testing concrete, as well as reinforced columns, etc. The test sample of stone is usually a cube of 4 in. or 6 in. side.

The illustration (Fig. 15) depicts the M.A.N. 100-ton testing machine. Above the cross-head is a compartment containing distilled water, and the pressure exerted by the lower platform, which works in a manner similar to that shown in Fig. 14, upon the test specimen is transmitted to the distilled

FIG.15.



water which has connected to it two pressure gauges. These have been calibrated so as to give us a graduated reading up to 100 tons. The general working of the machine will be understood by studying the illustration.

POINTS IN CONNECTION WITH THE LAW OF LANDLORD AND TENANT—XV.

COVENANTS AND STATUTORY LIABILITIES OTHER THAN MAKING-UP STREETS.

In the last two articles we have considered the liabilities imposed by covenants in leases and agreements as respects the making-up of streets both in the country and in the metropolitan area, but it is obvious that those are not the only statutory liabilities which may become imposed upon lessees and tenants by virtue of covenants in the tenancy agreements. It would be too large a subject in the space of an article to set out the various statutory provisions in the great number of Acts which impose obligations upon an owner of property which may become transferred to the shoulders of the tenant by the use of certain words in covenants in the tenancy agreement, but we can draw attention to one class of cases from which a useful principle can be drawn.

Under section 101 of the Factory Act, 1901, an underground bakehouse can only be used after January 1, 1904, if certified by the district council to be suitable for the purpose, but subsection (8) provides that where any place has been let as a bakehouse and the certificate cannot be obtained unless structural alterations are made and the occupier alleges that the whole or part of the expenses of the alterations ought to be borne by the owner he may apply to a court of summary jurisdiction and that court may make such order concerning the expenses and their apportionment as appears to the court to be just and equitable under the circumstances of the case, regard being had to the terms of any contract between the parties, or, in the alternative, the court at the request of the occupier may determine the lease. In Goldstein *v.* Hollingsworth (1904, 2 K.B. 578; *The Builder*, September 17, 1904) the lessee and occupier of a bakehouse had made such an application to the court of summary jurisdiction, but his lease contained a covenant that he should pay "all existing and future impositions and outgoings," and the magistrate had refused to make an apportionment, as he held that the expenses in question were covered by the covenant. A Divisional Court upheld this decision, holding on the authority of Foulger *v.* Arding (1902, 1 K.B. 761; *The Builder*, March 22, 1902) that the expenses were an imposition or outgoing and that had the magistrate apportioned them the lessor could have brought an action against the lessee to recover the sum apportioned. This case was followed by Morris *v.* Beal, 1904 (1904, 2 K.B. 585). There the magistrate had in similar circumstances made an apportionment, but on the ground that the expenses were not an "outgoing." A Divisional Court held that he was wrong because the expenses were an outgoing within the covenant in the lease, and where there is such an express covenant the question of what is just and reasonable does not arise and there was no jurisdiction to apportion.

These decisions are no longer law, as the ground of both decisions appears to have been that the lessor could recover from the lessee in an action under the covenant any sum apportioned against him, and this has been taken away by the decision of the Court of Appeal in Stuckey *v.* Hooke (1906, 2 K.B. 20). There a lessor was seeking to recover by action from his lessee who was under covenant to pay all "impositions and outgoings" the expenses of works he had been compelled to undertake in respect of a bakehouse under the above section of the Factory Act. The lessee had paid into court the proportion of such expenses which had been apportioned against him, but the lessor was claiming the whole of the expenses; the Court of Appeal held that no action would lie, as the jurisdiction of the High Court was excluded by section 101 of the Factory Act, subsection (8), that is to say, the only remedy is that provided by that Act.

The court in this case was following another decision of the Court of Appeal, Horner *v.* Franklin (1905, 1 K.B. 479), which was decided upon another section of the Factory Act, section 7 of the Act of 1891, now practically reproduced in section 14 of the Act of 1901, relating to means of escape in case of fire. Under that section, if an owner alleges that the occupier should contribute to the expenses incurred in complying with the requirement of the Act the application has to be made to the county court and that court can make such order as appears reasonable, the same terms being used as in section 101, except the words "regard being had to the terms of any contract between the parties, etc.," are omitted. The Court of Appeal held that the only remedy was that provided by the section and the jurisdiction of the High Court was excluded; but despite the omission of the words referred to above, it was intimated that the county court in deciding what was just and reasonable, should bear in mind the contract between the parties. We therefore find this proposition laid down, that if the Act which imposes a duty or liability on the landlord or lessee provides a special remedy by which the liability can be adjusted as between the parties that remedy alone can be resorted to and an action between the parties in respect of that matter will not lie.

This does not mean as we have shown that the tenant will escape all liability under the covenant in his lease as in applying the remedy the tribunal will take into consideration the terms of the lease, and if questions of law arise the decision of the tribunal can be reviewed by a Divisional Court. Thus in Monro *v.* Lord Burghclere (1918, 1 K.B. 100) the respondent had leased a house to the appellant's predecessor in title, the appellant being the lessee, under a lease which contained a covenant that the lessee "should execute all such works as are or may, under or in pursuance of any Act or Acts already passed or hereafter to be passed, be directed or required by any local or public authority to be executed at any time during the term upon or in respect of the said premises whether by the landlord or the tenant thereof." Two years after the commencement of the lease the London Building Acts (Amendment) Act, 1905, was passed, which provides that every new building which is adapted to be occupied by more than 20 persons shall be provided in accordance with plans approved by the council with such means of escape from fire as can reasonably be required, and the county court may on the application of the owner who has paid the expenses of doing the work apportion the expenses among the several persons entitled to any estate or interest in the building as appears to the court to be just and equitable in the circumstances of the case, regard being had to the terms of any lease or contract affecting such building. The premises had been sublet for the rest of the term less a few days, and in 1915 a fire occurred destroying such a portion of the premises that the re-erection would render it a "new building" under the Act. The appellant had rebuilt the house, adapting it to accommodate more than 20 persons, and in obedience to a requirement of the council had provided means of escape from fire at a cost of £410, and he summoned the freeholder and the sublessee before the county court to have the expense thus incurred apportioned. It was admitted that the covenants in the underlease did not render the sublessee liable to indemnify his under lessor against this expense. The county court judge apportioned £160 to be paid by the underlessee, and the whole of the balance (£250) to be paid by the lessee on the ground that it would be inequitable to throw on the freeholder any part of the burden which the lessee had taken upon himself under the covenant. The lessee appealed to a Divisional Court, contending that as the lessee had no beneficial interest in the premises and the lease had only eight years to run, it was not "just and equitable" that the lessor should get the benefit of the improvement at the lessee's expense. The court held that the parties to the original lease must have contemplated the possibility of such a future enactment as this and that under the circumstances it would not be just or equitable to disregard the terms of the covenant and the apportionment was upheld.

Rates.

In our twelfth article in connection with covenants in leases we briefly referred to taxes but deferred the question of rates, so we will conclude this series of articles with a reference to two or three cases on rates. As rates are primarily always payable by the occupier, questions under covenants usually only arise where parts of premises are separately demised and there is a covenant by the lessor.

In Salaman *v.* Holford (1909, 2 Ch. 602; *The Builder*, December 11, 1909) the four upper floors of a building were demised for a term of 21 years at a rent of £300 per annum, the lessor covenanting to pay all rates "now payable or hereafter to become payable in respect of the premises." At the date of the lease the whole building was assessed in one sum, the proportion attributable to the demised portion of the premises being £194. Subsequently the lessee with the consent of the lessor let each floor separately at profit rentals, which amounted in all to £520, and at the quinquennial valuation each floor was assessed separately, the aggregate sum being £293. This increase in the assessment was attributed to the lessee having let the floors at profit rentals and a summons was taken out on behalf of the lessor to determine whether the lessor was liable to pay the rates in proportion to the rent reserved in the lease or in proportion to the increased assessment, and the Court of Appeal held that under the covenant he was liable to pay the increased rates.

Water Rates.

As regards water rates where the whole building has been demised it has been held that water for domestic purposes under the Waterworks Clauses Act, 1847, is not a rate or imposition "imposed on or in respect of the premises" within a covenant which imposed such a charge on the lessor, and the lessee could not recover the same (Badcock *v.* Hunt, 22 Q.B.D. 145). But where the lessor had leased a shop and basement and three rooms on the third floor covenanting to pay "all rates chargeable in respect of the demised premises" and the tenant had paid for the water, separately supplied to the shop and basement, and was seeking to recover the sum so paid from the lessor, it was held this was a rate within the meaning of the covenant and the tenant could recover it from the lessor. (Direct Spanish Telegraph Co. *v.* Shepherd, 132 Bd 202.) This case was approved and followed by the Court of Appeal in Bourne & Tant *v* Salmon & Gluckstein, Ltd. (1907, 1 Ch. 616). There under an underlease of a shop and basement forming part of a large block of buildings it was covenanted that the lessors should "at all times during the continuance of the term procure to be paid all rates payable in respect of the said demised premises." Water for domestic purposes had been supplied to the whole building and paid for in one rate. It was held by the Court of Appeal that the rent was intended to be an inclusive rent and that the lessees were to be indemnified against all rates, including water rate.

Lastly, we may refer to a case where water rates were expressly mentioned in the covenant. In Floyd *v.* Lyons (1897, 1 Ch. 633) the ground floor and basement in certain premises had been leased to Messrs. Lyons

and the lease contained a covenant that the lessor should pay "all rates, taxes and assessments, water rate and other outgoings except the gas and electric light, now or hereafter to be imposed or assessed upon the said premises or on the lessor or lessees in respect thereof." Messrs. Lyons required a supply of water for trade purposes, and it was held by the Court of Appeal that under the above covenant the lessors were liable to pay the water rate supplied for domestic purposes under the New River Act because that rate is in effect assessed upon the annual value of the house, but not the water supplied for trade purposes, which is a matter of bargain between the person requiring the supply and the water company.

NEW BUILDINGS IN LONDON

Acton.—HOSTEL.—A new nurses' hostel is to be erected at Acton Hospital at a cost of £14,125 for the Hospital Committee. The architect is Mr. E. C. P. Monson, F.R.I.B.A., of Finsbury-pavement House, E.C. No building contract has yet been let.

Aldwych.—BUILDING.—Work is to be begun at once upon the erection of the £300,000 India House, for the High Commissioner and Trade Commissioner of India. The contract has been secured by Messrs. Higgs and Hill, Ltd. Sir Herbert Baker is the architect.

Beckenham.—SCHOOLS.—The Christ Church Schools are being rebuilt in High-street, Beckenham. Messrs. George Green (Beckenham), Ltd., are the general contractors, and Messrs. Young and Co., 6, Queen Anne's-gate, S.W., are supplying the constructional steelwork. Mr. T. P. Figgis, F.R.I.B.A., 9, Old-square, Lincoln's Inn, is the architect.

Brixton. — OFFICES. — Messrs. Gaze's, of Kingston-on-Thames, have secured a contract for the London County Council for ticket-checking offices at Brixton.

Brixton.—RECONSTRUCTION.—Messrs. Bon Marché, Ltd., drapers, propose to commence the reconstruction of a further portion of their branch premises in Brixton-road, S.W.9. Messrs. H. Payne Wyatt, Son and Partner, 465, Brixton-road, S.W., have designed the new building.

Brook-street. — RECONSTRUCTION. — Messrs. Ernest Yates and Co., have received the necessary sanction for the reconstruction of Symonds' Hotel, 34, Brook-street, W.1, including five shops on the ground floor. The plans have been prepared by Messrs. Yates, Cook and Darbyshire, 43, Gt. Marlboro'-street, W.1.

Camberwell.—REBUILDING.—The "Grove House Tavern" public house at 26, Camberwell-green, S.E., is being rebuilt by Messrs. Meux's Brewery Co., Ltd., Nine Elms-lane, S.W.8, to the plans of their surveyor, Mr. W. F. Foster. The contractors are Messrs. Courtney and Fairbairn, Ltd., 377, Albany-road, S.E.5.

Charing Cross-road.—EXTENSION.—Messrs. Gale, Heath and Sneath, of 15, New Bridge-street, E.C., are the architects, and Messrs. Mullen and Lumsden, Ltd., 41, Eagle-street, W.C.1, are the builders for the extension to the premises of the Halifax Permanent Building Society at 124, Charing Cross-road.

Chiswick.—BANK.—Messrs. Mullen and Lumsden, Ltd., 41, Eagle-street, W.C.1, have secured the contract for the erection of the new Midland Bank at 8 and 9, Gunnersbury-avenue, W.5. Messrs. C. FitzRoy Doll and Sons, of 5, Southampton-street, Bloomsbury, are the architects.

Cornhill.—REBUILDING.—Messrs. Holland and Hannen and Cubitts, Ltd., 258, Gray's Inn-road, W.C.1, have secured the contract for underpinning and foundation work in connection with the rebuilding of the premises of the Commercial Union Assurance Co., in Cornhill, E.C.3. The architects are Sir Aston Webb and Son, 19, Queen Anne's-gate, Westminster, S.W.1.

Croydon.—FLATS.—Mr. R. Mansell, 17, Grant-road, Croydon, is the builder of two blocks of flats in Lower Addiscombe-road. Plans have been prepared by Messrs. Hendry and Schooling, 53, Doughty-street, W.C.1.

Farringdon-street. — REBUILDING. — The "White Swan" public-house, 18, Farringdon-street, E.C., is to be rebuilt to the plans of Mr. G. G. Macfarlane, for Messrs. Watney, Combe, Reid and Co., of Stag Brewery, Pimlico, S.W. The builders are Messrs. Mullen and Lumsden, of 41, Eagle-street, W.C.1.

Forest Gate. — RECONSTRUCTION. — The "Queen's" Cinema is to be extensively reconstructed, including the provision of a gallery and the raising of the roof, to provide accommodation for nearly 2,000 persons. The plans have been prepared by Messrs. Leathart and Granger, FF.R.I.B.A., 7, John-street, Adelphi, W.C.2.

Hendon.—LIBRARY.—The first section of the new public library to be built at the Burroughs, Hendon, will cost £12,000.

Islington.—REBUILDING.—The "Crown and Anchor" public-house in Cross-street, Upper-street, N.1, is to be rebuilt by Messrs. Watney, Combe, Reid and Co., Ltd., Stag Brewery, S.W.1, to the plans of their surveyor, Mr. G. G. Macfarlane. The builders are Messrs. Courtney and Fairbairn, Ltd., 377, Albany-road, S.E.5.

Kensington.—SHOPS.—A row of shops, with further houses and garages, are to be erected on a site in St. Quinton-avenue, W.10. The builder is Mr. A. S. Franklin, Estate Office, Highlever-road, W.10.

Lewisham.—ENLARGEMENT.—The Governors of the Prendergast School propose to enlarge their buildings by the erection of an additional story at a cost of about £10,000. Plans are being prepared by the architect, Mr. E. A. Stone, F.S.I., 20, Berkeley-street, W.1.

Little Earl-street.—SHOPS.—A site in Little Earl-street, W.C., has been acquired by Messrs. W. Frost and Sons (London), Ltd., merchants, for the erection of new shops and warehouses. Messrs. Trehearne and Norman, Windsor House, Kingsway, W.C.2, have been appointed to prepare the plans.

New Cross.—REBUILDING.—Work is shortly to be put in hand upon the rebuilding of the "Rising Sun" public-house in Dennett's-street, S.E., for Messrs. Truman, Hanbury, Buxton and Co., Ltd., Spitalfields, E.1. Plans have been prepared by Mr. A. E. Sewell, L.R.I.B.A., 91, Brick-lane, E.1.

New Oxford-street.—ALTERATIONS.—Extensive alterations and improvements are to be made to No. 2, New Oxford-street, W.C.1, to the designs of Mr. G. Gordon Stanham, 27, Bush-lane, Cannon-street, E.C.4. The builders are Messrs. H. King and Son, 2A, Commercial-road, S.E.15.

Newbury Park, E.—HOUSE.—Messrs. Barclay, Perkins and Co., Ltd., brewers, Park-street, S.E.1, are to build a new public-house at Eastern-avenue, E., to the plans of Mr. F. G. Newnham, surveyor.

Praed-street.—EXTENSION.—St. Mary's Hospital, Paddington, has collected £40,000 of the £60,000 required for extensions to the hospital.

Piccadilly.—OFFICES.—The Midland Bank, Ltd., propose to open a new branch office in the building at the corner of Piccadilly and Stratton-street, W.1, being erected by Messrs. Holloway Bros. (London), Ltd., Bridge Wharf, Grosvenor-road, S.W.1. The architect is Mr. W. Curtis Green, A.R.A., 5, Pickering-place, St. James's-street, S.W.1.

Red Lion-street.—ALTERATIONS.—Messrs. Humphrey, Ltd., Knightsbridge, S.W.7, are carrying out alterations, etc., to the Card Factory, Red Lion-street, S.E.1, of Messrs. Spicers, Ltd. The plans have been prepared by Mr. F. W. Troup, F.R.I.B.A., 14, Gray's Inn-square, W.C.1.

Regent-street.—BUILDING.—The contract for the rebuilding of No. 27, Regent-street, and 14-15, Jermyn-street, S.W.1, has been placed with Messrs. Ashby and Horner, Ltd., 8, Aldgate, E.1. The plans for the new buildings, which include a new bank for Messrs. Barclay's Bank, Ltd., have been prepared by Messrs. Edmeston and Gabriel, 42, Old Broad-street, E.C.2.

St. Pancras.—BUILDINGS.—Lord Jellicoe laid the foundation stone on January 25 of a block of new flats being built in Drummond-crescent, N.W.1, by the St. Pancras House Improvement Society, Ltd. The builders are Messrs. Wheeler Bros., 120, Church-street, Kensington, W. The architect is Mr. Ian B. M. Hamilton, F.R.I.B.A., 16, Old-buildings, Lincoln's Inn, W.C.2.

South Kensington.—REMODELLING.—A start is shortly to be made on the remodelling of South Kensington Underground Railway Station.

Stamford-street.—QUARTERS.—Messrs. F. and H. F. Higgs, Ltd., Station Works, Hinton-road, Herne Hill, S.E., are to commence upon the erection of a further block of married quarters off Stamford-street, S.E.1, for the Metropolitan Police. The plans have been prepared by Mr. G. Mackenzie Trench, F.R.I.B.A., New Scotland Yard, Westminster, S.W.1.

Twickenham. — HOUSES. — The premises known as Croxford Garages, in York-street, are to be demolished, and a block of shops and houses erected. The plans have been prepared by Mr. W. H. Hamlyn, A.R.I.B.A., 43, Vernon-road, East Sheen, S.E.

Walthamstow.—STORES.—The East Metropolitan Brickworks, Ltd., 150, Southampton-row, W.C.1, are to build large works and stores at Higham Hill, E., at a cost of about £84,000. The contract has been placed with Messrs. Herbert Alexander and Co., Ltd., engineers, Leeds.

Wandsworth.—EXTENSIONS.—The Church of England Central Board of Finance have approved the expenditure of over £100,000 upon the new Whitelands Training College for Clergy at West Hill, S.W. The architect is Sir Giles Gilbert Scott, R.A., 7, Gray's Inn-square, W.C.1.

Wembley. — CINEMA. — The "Wembley Majestic Theatre, Ltd.," has been formed to build a large cinema and theatre in Wembley High-street. The registered offices are at 3, Gray's Inn-place, W.C.1.

West Ealing.—ENLARGEMENT.—The Kinema, Uxbridge-road, West Ealing, is to be enlarged so as to provide accommodation for 1,500 persons. Mr. Percy Pratt is the architect.

York-road.—HOME.—An appeal for £40,000 is being made by the governors of the General Lying-In Hospital, S.E.1, to enable a commencement to be made with the new nurses' home, out-patients' department, dental clinic, etc. The architect is Mr. E. Turner Powell, F.R.I.B.A., 23A, Ebury-street, Eaton-square, S.W.1.

SOUTHERN COUNTIES FEDERATION OF BUILDING TRADES' EMPLOYERS

At the annual general meeting of the Southern Counties Federation of Building Trades Employers, which was attended by sixty members of the Federation, the following officers were elected for 1928:—

President: Mr. R. H. Tribe, F.I.O.B. (Guildford).

Senior Vice-President: Councillor F. B. Bending, J.P., F.I.O.B. (Bexhill).

Junior Vice-President: Mr. A. W. Larkin, C.C. (Ramsgate).

Hon. Treasurer: Mr. A. Francis, F.I.O.B. (Reading).

Hon. Auditor: Councillor W. J. Brooker, F.I.O.B. (Eastbourne).

The opportunity was taken to consider at some length the question of the reduction of ½d. per hour to be made in the rates of wages of craftsmen and labourers from February 1, pursuant to the decision of the meeting of the National Joint Council on January 12. It was the unanimous decision of the meeting to give effect to the reduction.

The meeting was furnished with a report of the proceedings at the recent meetings of the Regional Joint Committee with reference to the up-grading applications and the proposals for variation amendments. Among other matters considered were the question of a Uniform Daywork Schedule for the Region and the position with regard to sub-contractors tendering direct to architects.

A luncheon followed the meeting, at which the President of the National Federation of Building Trades' Employers responded to the toast of "The National Federation."

RATES OF WAGES IN THE BUILDING TRADE

[Every endeavour is made to ensure accuracy but we cannot be responsible for errors.]

	Masons	Bricklayers.	Carpenters Joiners	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers.
Aberdare	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Accrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Alfreton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Alnwick	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Altrincham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ashford (Kent)	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Ashington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ashton-under-Lyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Aylesbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Aylsham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Banbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Barnsley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barnstaple	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Barrow-in-Furness	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Basingstoke	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Bath	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bedford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Berwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bexhill	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Birkenhead	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Birmingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bishop Auckland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackburn	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackpool	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bolton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bournemouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bradford	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bradford-on-Avon	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Braintree	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Brentwood	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bridgwater	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Bridlington	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Brighton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bristol	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bromsgrove	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bromyard	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Bungay	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Burnley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Burton-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Buxton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Cambridge	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Canterbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Cardiff	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Carlisle	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chatham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Chelmsford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Cheltenham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Chester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chesterfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chorley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cirencester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Clacton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Colchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Coventry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cranbrook	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Crewe	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Cromer	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Darlington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Deal	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Denbigh	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Derby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Devizes	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Dewsbury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Doncaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Dorchester	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Dorking	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Dovercourt	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Driffield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Droitwich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Dudley	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Durham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Eastbourne	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
E. Glam. (Mon. Val.)	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ely	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Exeter	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/2
Exmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Fakenham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Felixstowe	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Folkestone	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Frome	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Glossop	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Gloucester	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Godalming	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Goole	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Gosport	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Grantham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Great Yarmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Grimsby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Guildford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Halifax	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harpenden	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Harrogate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hartlepools	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harwich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hastings	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Hatfield	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hednesford	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Hereford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Herne Bay	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Hertford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hitchin	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hoddesdon	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Holt	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Huddersfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hull	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hunstanton	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Huntingdon	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Isle of Wight	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Ipswich	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Keighley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Kettering	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Kidderminster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
King's Lynn	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Lancaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2

	Masons	Bricklayers.	Carpenters Joiners	Plasterers.	Slaters	Plumbers.	Painters.	Labourers
Leeds	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leicester	1/7½	1/7½	1/7½	1/7½	1/7½	1 7½	1/7½	1/2½
Leighton Buzzard	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Lichfield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Lincoln	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Littlehampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Liverpool	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Llandudno	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Llanelly	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
London:								
12 m. radius	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/4
12–15 m. radius	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/3½
Loughborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Lowestoft	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Luton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Macclesfield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Maidstone	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Malvern	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Manchester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Mansfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Margate	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Market Harb'rough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Matlock	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Melton Constable	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Melton Mowbray	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Merthyr Tydfil	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Middlesbrough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newark	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Newbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Newcastle-on-Tyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newcastle-ur-Lyme	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
New Forest	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newmarket	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newport, Mon.	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Nottingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Nuneaton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Oldham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oxford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Paignton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Peterborough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Plymouth	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2½
Pontypridd	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1 2½
Portsmouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Preston	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ramsgate	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Reading	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Redcar	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Redditch	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Reigate	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Retford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Ripon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Rochdale	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Rochester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Rugby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Saffron Walden	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
St. Albans	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
St. Helens	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sawbridgeworth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Saxmundham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Scarborough	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Sevenoaks	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Sheffield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Shrewsbury	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Sittingbourne	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Southampton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Southend-on-Sea	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Southport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
South Shields	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stevenage	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Stockport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stockton-on-Tees	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stoke-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stourbridge	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stourport	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stowmarket	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Stratford-on-Avon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Stroud	1/5	1/5	1/5	1/5	1/5	1/5	1/4½	1/0½
Sunderland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swaffham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Swansea	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swindon	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Tamworth	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Taunton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Thetford	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Torquay	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Totnes	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4	1/0½
Trowbridge	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Tunbridge Wells	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Uttoxeter	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Wakefield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Walsall	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wallsend	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warminster	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Warrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wells (Norfolk)	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Welwyn. Gar. City	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
West Bromwich	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Weston-sup.-Mare	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Weymouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Whitby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wigan	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Winchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Windsor	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Wisbech	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Wolverhampton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Woodbridge	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Worcester	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Worksop	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Worthing	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Wrexham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wroxham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Wymondham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
York	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½

For rates of wages in the Building Trade in Scotland, see page 238.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING ETC.

Feb. 6.—**Bethnal Green.**—Superstructure and execution of other works relating to proposed public baths and washhouses at Old Ford-rd., for the Borough Council. A. E. Darby, A.M.I.C.E., Borough Engineer and Surveyor, Town Hall, Cambridge-rd., Bethnal Green, E.2. Dep. £5.

Feb. 6.—**Caernarvon.**—Rebuilding.—Portion of wall at Victoria Dock, for Harbour Trust. L. L. Jones, E. and S., Lloyds Bank-chambers.

Feb. 6.—**Grimethorpe.**—Painting.—Also decorating inside and outside of Grimethorpe Working Men's Club, Brierley-rd. T. Cosgrove, secretary.

Feb. 6.—**Hampstead.**—Roof Work.—Reconstruction of a portion of a roof at the Town Hall, for the Hampstead B.C. J. E. Swindlehurst, M.A., A.M.I.C.E., Borough Engineer, Town Hall, Haverstock Hill, N.W.3.

Feb. 6.—**Horsham.**—Houses.—Erection of 72 on the Millthorpe estate, Littlehaven-lane, Roffey, for the U.D.C. C. G. Atkinson, Council's Surveyor, Town Hall-chambers, Horsham. Dep. £3 3s.

Feb. 6.—**Leslie.**—Houses.—40, at Maryfield site, for T.C. Walker & Pride, architects, Church-sq., St. Andrews. Dep. £2 2s.

Feb. 6.—**Llanelly.**—Centre.—Handicraft instruction centre, at Central school, for E.C. B.S.

Feb. 6.—**Macclesfield.**—Houses.—20, at Dickens-lane, Poynton-with-Worth, near Stockport, for R.D.C. G. Clayton, architect, 4, Wellington-st., Stockport. Dep. £2 2s.

Feb. 6.—**Mansfield.**—Houses.—20, at Dickens-lane, Poynton-with-Worth, for R.D.C. G. Clayton, architect, 4, Wellington-st., Stockport. Dep. £2 2s.

Feb. 6.—**Morecambe.**—Houses.—3 pairs semi-detached at White Lund Depot, Torrisholme, Moss lane, for Corporation. P. W. Ladmore, B.S. Dep. £2 2s.

Feb. 6.—**St. Neots.**—Alterations.—At London Inn, for D. Venning & Son, Ltd. H. R. Venning, architect and surveyor, Midland Bank-chambers, Liskeard.

Feb. 6.—**Thorne.**—School.—Grammar school, for West Riding E.C. Education Department, County Hall, Wakefield.

Feb. 6.—**Woodford.**—Alterations.—Also decorations to Rates Department, Council Offices, Woodford Green, for U.D.C. Clerk.

Feb. 7.—**Greasbro'.**—Demolition.—3 cottages and clearance of sites, and erection of 2 boundary stone walls, total length 120 yards, at foot of Church-st., also demolition and re-erection of public urinal at foot of Church-st., for U.D.C. J. H. Jackson, C.

✱Feb. 7.—**Lambeth.**—Cooking Apparatus.—Supply and erection of, at the Lambeth Hospital, at Kennington, for the Guardians of the Parish of Lambeth. James L. Goldspink, clerk, Guardians' Board Room and Offices, Brook-st., Kennington-rd., S.E.11. Dep. 5s. for copy of drawing.

Feb. 7.—**Manchester.**—Flooring.—Wood-block flooring at Styal Cottage Homes, Styal, near Manchester, and at Tame-st. Institution, Ancoats, and for supply and fixing of patent glazing at the Crumpsall Institution, Crescent-rd., Crumpsall, for B.G. E. Hargreaves, superintendent of works, Union Offices, All Saints'.

Feb. 7.—**Tamworth.**—Houses.—52 non-parlour type; and construction of about 400 yds. of roadway, consisting of tarmacadam carriage-way and paths, grass verges, kerbing, etc., and about 1,100 feet of 9 in. and 6 in. stoneware sewers, together with manholes, gullies, etc., for T.C. A. O. Marshall, B.E. and S.

Feb. 8.—**Anagry.**—Adaptation.—Of a building at Anagry, Co. Donegal, as a station, for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works, Dublin. Dep. £1.

Feb. 8.—**Belfast.**—Converting.—Existing premises in Oxford-st. into public sanitary conveniences, for C.B. City S.

Feb. 8.—**Dungarvan.**—Houses.—3 houses and 2 out-offices on lands of Duckspool, Dungarvan, Co. Waterford, for Irish Land Commission. J. T. Drennan, secretary, Upper Merrion-st., Dublin. Dep. £1.

Feb. 8.—**Hinckley.**—Houses.—6 additional parlour houses, Byron-st., Barwell, for R.D.C. E. H. Crump, architect, Barclays Bank Chambers.

Feb. 8.—**Littlehampton.**—Painting.—Exterior of isolation hospital, Wick, for U.D.C. S.

Feb. 8.—**Poplar.**—Nurses' Messroom.—Erection of, at St. Andrew's Hospital, Bromley-by-Bow, for the Poplar Board of Guardians. Harley Heckford, M.Inst.C.E., architect, Council Offices, High-st., Poplar. Dep. £3 3s.

Feb. 8.—**Sittingbourne.**—New Hospital.—Erection of new hospital Bell and Highsted-rds., Sittingbourne, for the District Cottage Hospital Committee. G. H. Potter, 76, High-st., Sittingbourne.

Feb. 8.—**Swansea.**—Houses.—Erection of a further 50 at the "Mayhill" estate, Swansea, for the County B.C. Ernest E. Morgan, A.R.I.B.A., Borough Architect, 3, Prospect-pl. Dep. £3 3s.

Feb. 9.—**Atherton.**—Cottages.—14, 20, or alternatively 34 non-parloured cottages on Hag Fold estate, for U.D.C. S. Dep. £2 2s.

Feb. 9.—**Bristol.**—Painting.—Cleaning and repainting station buildings, etc., at Bath, Saltford and Keynsham, for G.W.R. F. R. E. Davis, secretary, Paddington Station, London, W.

Feb. 9.—**Dublin.**—Electric Lighting.—Installation, at (1) Four Courts, Dublin, and (2) Castlebar Military Barracks, Co. Mayo, for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works. Dep. £1 each.

Feb. 9.—**Epping.**—Houses.—Erection of 7 pairs, at Hobbs Cross-rd., Harlow, and 4 pairs at Potter-st., Harlow, for the R.D.C. W. Beard, Building Surveyor, Beechcroft, Harlow. Dep. £1 1s.

Feb. 9.—**Gravesend.**—Convenience.—At Gordon Promenade, for T.C. B.E. and S.

Feb. 9.—**Manchester.**—Alterations.—Also additions at Ducie-av. municipal school, Chorlton-on-Medlock, for E.C. P. M. Heath, T.C. Dep. £2 2s.

Feb. 9.—**Manchester.**—Houses.—350, on Blackley estate, for T.C. P. M. Heath, T.C. Dep. £2 2s.

Feb. 9.—**Stepney.**—Wells, etc.—Construction of wells, caissons in River Thames, circulating water tubes, etc., at Limehouse Electricity Generating Station, Narrow-st., E., for the B.C. of Stepney. B.E., Bernard J. Belsher, M.I.C.E., M.I.M.E., Municipal Offices, Raine-st., E.1, between 10 a.m. and noon. Dep. £10 (Treasury notes).

Feb. 10.—**Carlisle.**—Conversion.—Of buildings, Carlisle Prison, into Weights and Measures Department and Highways Depot, for Cumberland C.C. J. Forster, F.R.I.B.A., C.A. Dep. £2.

Feb. 10.—**Croydon.**—Additions.—Reconstruction of, and additions to, Women's Slipper Baths and Laundry at the Central Baths, Scarbrook-rd., for the Croydon B.C. Borough Engineer, Town Hall, Croydon. Dep. £2 2s.

Feb. 10.—**Greetland.**—Installation.—Of electric light at Council school, for West Riding E.C. P. H. Swire, Education Office, Huddersfield-rd., Elland.

Feb. 10.—**Ireland.**—Improvements.—For (1) erection of National School at Killala, Co. Mayo; (2) improving Glencastle National School, Co. Mayo; and (3) improving Pulathomas National School, Co. Mayo, for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works, Dublin. Dep. £1 each.

Feb. 10.—**Looe.**—Extension.—Of Church End conveniences at East Looe, for U.D.C. G. H. Ivory, S.

Feb. 10.—**Malmesbury.**—Drainage.—Reconstruction of drainage system and other small structural works at Institution, for B.G. Parker Pearson and Ross Hooper, engineers, Dallas Chambers, Chippenham. Dep. £2 2s.

✱Feb. 10.—**Staffordshire.**—Houses.—Erection of 40 non-parlour type houses, including drainage of same and filling where necessary on the Stile House Farm housing estate, for the Rowley Regis U.D.C. Council's Surveyor, Council House, Old Hill, Staffordshire.

Feb. 10.—**Sutton.**—Installation.—Of heating and hot water supply apparatus at telephone exchange, for H.M.O.W. Contracts Branch, H.M. Office of Works, King Charles-st., S.W.1. Dep. £1 1s.

Feb. 10.—**Whitby.**—Theatre Alterations.—Alterations and additions to the Spa Theatre, including the construction of a balcony for the U.D.C. J. R. Seward, Assoc.M.Inst.C.E., M.Inst.M.&Cy.E., Engineer and Surveyor, Council Offices, Whitby. Dep. £2 2s.

Feb. 11.—**Aberystwyth.**—Houses.—32 on housing estate at Penparke, for T.C. L. Jones, B.S. Dep. £2 2s.

Feb. 11.—**Bury.**—Extensions.—Nurses' home, of 51 beds and kitchen extensions at Bury Infirmary, for Committee. A. C. M. Lillie, L.R.I.B.A., chartered architect, Bamber Bridge, Preston.

Feb. 11.—**Bury.**—Home.—Concrete piling to new nurses' home at Infirmary, for Committee. A. C. M. Lillie, L.R.I.B.A., chartered architect, Bamber Bridge, Preston.

Feb. 11.—**Ince-in-Makerfield.**—Houses.—20 parlour type and 34 non-parlour type, for U.D.C. W. Thornley, L.R.I.B.A., 46, Wallgate, Wigan.

Feb. 11.—**Keynsham.**—Improvements.—At Poor-Law Institution, for B.G. Ernest A. Tew, clerk.

✱Feb. 11.—**Leamington Spa.**—Proposed Art Gallery and Museum Extension.—Erection of, for the Corporation. A. C. Bunch, F.R.I.B.A., 27, Binswood-av., Leamington Spa. Dep. £2 2s.

Feb. 11.—**Rochford.**—Houses.—20 non-parlour type, in Thundersley, for R.D.C. A. C. Madge, S. Dep. £1 1s.

Feb. 11.—**St. Pancras.**—Alterations.—Builders' work in connection with alterations to buildings for meter shops, for the B.C. Electrical Office, 57, Pratt-st., N.W.1. Dep. £1.

Feb. 11. — **Southend-on-Sea.** — Houses and Flats.—Erection and completion of 107 houses and 12 flats at Eastwood-lane, for the Corporation. Robt. H. Dyer, Borough Engineer, Southend-on-Sea. Dep. £2.

Feb. 13.—**Bramhall.**—Telephone Exchange.—Erection of, at Bramhall, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Feb. 13.—**Cardiff.**—Extensions.—To Girls' High school, The Parade, for E.C. G. H. Whitaker, Architect to E.C. Dep. £2 2s.

Feb. 13.—**Caterham.**—Fire Station.—For U.D.C. S. Dep. £1 1s.

Feb. 13.—**Croydon.**—Houses.—Erection of 96, at Mitcham-rd. estate, for the Croydon B.C. Borough Engineer, Town Hall, Croydon. Dep. £2 2s.

Feb. 13.—**Ellesmere Port.**—Centre.—Maternity and child welfare centre fronting York-rd., Ellesmere Port, for Ellesmere Port and Whitby U.D.C. Surveyor. Dep. £5.

Feb. 13.—**London.**—New Mezzanine Floor.—Construction of, at General Post Office South, Queen Victoria-st., for the Commissioners H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Feb. 13.—**Whitstable.**—Conversion.—Of existing buildings into disinfecting station, etc., and erection of a new fire station at Horsebridge-rd., for U.D.C. J. Dunn, Surveyor and Water Engineer. Dep. £1 1s.

Feb. 14. — **Barking, Essex.** — Houses and Flats.—Erection 120 houses and 78 flats, in 13 blocks, for the Barking Town U.D.C. Council's Architect, C. J. Dawson, F.R.I.B.A., Clock House Chambers, East-st., Barking. Dep. £5.

Feb. 14.—**Deal.**—Telephone Exchange.—Erection of, at Deal, Kent, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Feb. 14.—**Edmonton.**—Installation.—Maintenance of electric lighting installation at Town Hall and offices, public baths, cleansing station, stores, mortuary and outbuildings, maternity centre and public libraries, for U.D.C. Cuthbert Brown.

Feb. 14.—**Kidderminster.**—Centre.—Domestic subjects centre in Castle-rd., for T.C. J. Hawcroft, B.E. and S.

Feb. 14.—**Preston.**—Houses.—157, for C.B. W. Platt, B.E. and S. Dep. £2.

Feb. 14.—**Reigate.**—Cottages.—Erection of 8 non-parlour cottages in Outwood-lane, Chipstead, for the Reigate R.D.C. Offices of the District Surveyor, 48, High-st., Reigate. Dep. £3 3s.

Feb. 14.—**Stanmore.**—Telephone Exchange.—Erection of, at Stanmore, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Feb. 14.—**Workington.**—Employment Exchange.—Erection of, at Workington, Cumberland, for the Commissioners H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Feb. 15.—**Birkenhead.**—Overhead Gas Works Sidings.—Reconstruction of railway sidings at Birkenhead, for the Corporation. Gas Engineer, Harold E. Stone, Gas Works, Thomas-st., Birkenhead. Dep. £2 2s.

Feb. 15. — **Brentford.** — Alterations. — Building work involving alterations necessary to provide the site for a new Weighbridge at the Institution at Isleworth for the Guardians. F. E. Harmsworth, clerk, Trolands House, 34, Twickenham-rd., Isleworth.

✱ Feb 15.—**Sheffield.**—Electric Supply Dept.—Designs and Tenders for structural steelwork and pre-cast reinforced concrete floors for proposed new stores and workshops to be erected on a site in Sheaf-st., Sheffield. S. E. Fedden, M.Inst.C.E., M.I.M.E., M.Inst.E.E., General Manager and Engineer, Commercial-st., Sheffield. Dep. £3 3s.

✱Feb. 16.—**Camberwell.**—Internal Painting and Redecorating Work.—At Dulwich Baths, East Dulwich-rd., S.E.22, for the Borough Council. William Bell, A.M.I.C.E., P.A.S.I., B.E. and S., Town Hall, Camberwell, S.E.5.

Feb. 16.—**Devon.**—Houses.—2 each at Fairmile, Ottery St. Mary; Kennford, Oakford and Rydon, near Holsworthy, for C.C. C.A., 97, Heavitree-rd., Exeter.

Feb. 16.—**Fulham.**—Nurses' Home.—Erection of, at the hospital, Fulham Palace-rd., W.6, for the Guardians of the Parish of Fulham. E. J. Mott, Clerk to the Guardians, 129, Fulham Palace-rd., London, W.6. Dep. £5.

Feb. 16.—**Stratton and Bude.**—Conveniences.—Refreshment-room and public conveniences, and other works, on site near Mentone, Bude, for U.D.C. F. J. Worden, surveyor, Belle Vue-av., Bude.

Feb. 18.—**Bentley.**—School.—Erection of Bentley new middle school and caretaker's house, for West Riding E.C. Education Department, County Hall, Wakefield.

Feb. 18.—**Glamorgan.**—Improvements.—For (1) Wyndham House, Llantwit Major, conversion into a police station; (2) Caerau Police Station, alterations and additions, and (3) Alexandra Hall, Pontypridd, external painting, etc., for C.C. T. Mansel Franklen, Clerk.

Feb. 20.—**Garforth.**—Houses.—26, on housing estate, for U.D.C. C. Castelow, A.R.I.B.A., 10, Park-row, Leeds. Dep. £2 2s.

✱ Feb. 20.—**Hertford.**—Cottages.—Erection of 152 subsidy cottages for the Hertford Corporation. Borough Surveyor's Office, The Castle, Hertford. Dep. £5 5s. (by cheque).

✱Feb. 20.—**Lambeth.**—County Court.—Erection of, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

Feb. 20.—**Sunderland.**—Houses.—14, Newcastle-rd., for C.B. B.E. Dep. £2 2s.

✱Feb. 20.—**York.**—Sorting Office.—Erection of, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

✱Feb. 21.—**Bourne End.**—Telephone Exchange.—Erection of, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

✱ Feb. 21.—**Chingford.**—New Public Offices and Fire Station.—Erection of, for the Chingford U.D.C. G. H. Green, clerk, Council Offices, 34, Station-rd., Chingford, E.4. Dep. £2 2s.

Feb. 21. — **London.** — Works and Repairs.—Execution of ordinary works and repairs to the Buildings in charge of the Commissioners, H.M.O.W., in the London district during the period from March 31, 1928—April 3, 1931. Contracts Branch, H.M.O.W., King Charles-st., London, S.W.1. Dep. £2 2s. (cheques payable to the Commissioners).

✱Feb. 21.—**Louth.**—Post Office and Telephone Exchange.—Erection of, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

✱Feb. 21.—**Lyme Regis.**—Post Office and Telephone Exchange.—Erection of, for the Commissioners of H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s. (Cheques payable to the Commissioners.)

✱Feb. 21. — **Various Places.** — Small Building Works and Repairs.—Contracts at R.A.F. Stations, Upavon, Netheravon, Larkhill, Ascot and Milton, from March 1, 1928. The work at Netheravon and Larkhill will be let under one contract. Superintending Engineer, Works and Buildings Dept., South Western District Headquarters, R.A.F. Station, Andover.

✱Feb. 22.—**Penge.**—Alterations and Additions.—To "Oaklawn," No. 194, Anerley-rd., Anerley, S.E.20, and also additions thereto, for the Penge U.D.C. Col. H. W. Longdin, Surveyor to the Council, Town Hall, Anerley, S.E. Dep. £3 3s.

Feb. 23.—**Nantwich.**—Electric Light.—Installation in Institution, for B.G. H. G. Atkinson, Clerk. Dep. £1 1s.

Feb. 23.—**Retford.**—Casual Wards.—Also other works on Lidgett Lane site, for East Retford B.G. W. Southall, L.R.I.B.A., Chapelgate. Dep. £2 2s.

✱ Feb. 23.—**Southampton.**—New Cells and Cottages.—Erection of new cells and pair of cottages at New Milton Police Station for the C.B. A. L. Roberts, county architect, The Castle, Winchester. Dep. £1 1s., must be made by cheque, payable to the Hants County Council, and crossed "Lloyds Bank, Ltd., Winchester," or particulars will not be sent.

Feb. 25.—**Egypt.**—Excavation.—Of approximately six and a half millions cubic metres of earthwork in the remodelling of the Fouadia Canal in Naghamadi district, Upper Egypt, for Ministry of Public Works.

Feb. 27.—**Morley.**—Fencing.—Wood garden fences to 96 houses on Britannia-rd. estate, for T.C. F. Turner, B.E. and S.

✱Feb. 27. — **Southend - on - Sea.** — Intermediate School.—Erection of, and works incidental thereto, at Fairfax-drive, for the Corporation. Frank W. Smith, Architect to the Education Committee, Municipal Buildings, Southend-on-Sea. Dep. £2.

Feb. 28.—**Poplar.**—Weighbridge.—Installation of a new weighbridge, including builders' work in connection therewith, at St. Andrew's Hospital, Bromley-by-Bow, for the Poplar Board of Guardians. Harley Heckford, M.Inst.C.E., architect, Council Offices, High-st., Poplar. Dep. £1 1s.

——.—**Astley.**—Hall.—Village hall. E. T. Elkes, The Grove, Astley.

——.—**Caernarvon.**—House.—New house at Caernarvon and Llanfaglan. W. W. Jones, architect and surveyor, Bryn Afon, Caernarvon.

——.—**Harrogate.**—School.—Erection of, for new Congregational Church, Skipton-rd., Bilton. Gibson & Hill, architects, 4, Station Bridge.

——.—**Scissett (Yorks).**—Bath.—Swimming bath and concert hall at Scissett, near Huddersfield. J. R. Lister, architect and surveyor, 32, Ings-rd., Wakefield.

——.—**Shepton Mallet.**—House.—A. J. Allen, architect and surveyor, Half Moon-st., Sherborne.

——.—**Welshpool.** — Offices. — County offices for Montgomery C.C. Briggs and Thornely, architects, Royal Liver Building, Pier Head, Liverpool.

MATERIALS, ETC.

Feb. 6.—**Bridgwater.**—Road Materials.—For T.C. H. P. Bishop, B.E. and S.

Feb. 6.—**Cornwall.**—Roadstone.—For C.C. E. H. Collcutt, C.S.

Feb. 6.—**Edinburgh.**—Pipes.—3,500 yds. 12-in. solid drawn steel pipes, for T.C. H. H. Gracie, Engineer and Manager, 15, Calton Hill.

Feb. 6. — **Hendon.** — Highway Materials.—For U.D.C. A. O. Knight, E. and S.

Feb. 6.—**Holywood.**—Stone, etc.—For U.D.C. J. S. Munce, Town S., 11, Wellington Place, Belfast.

Feb. 6.—**Ilford.**—Road Materials.—For T.C. H. Shaw, B.E. and S.

Feb. 6.—**Little Hulton.**—Highway Materials.—For U.D.C. J. H. Heyes, C.

Feb. 6.—**Sunbury-on-Thames.**—Limestone, etc.—For U.D.C. H. F. Coales, E. and S.

Feb. 6.—**Sutton-in-Ashfield.**—Tarmacadam.—For U.D.C. W. Burn, S.

Feb. 7.—**Belfast.**—Building Materials.—For L.M. and S. Rly. (Ireland) Co. Secretary, York-rd. terminus.

Feb. 7.—**Cardiff.**—Builder's Materials.—For T.C. T.C.

Feb. 7.—**Cheshunt.**—Granite, etc.—For U.D.C. J. E. Sharpe, E. and S.

Feb. 7. — **Oakworth.** — Road Materials. — For U.D.C. G. Blackbrough, E. and S.

Feb. 7.—**Oundle.**—Granite, etc.—For U.D.C. H. W. Bolton, E. and S.

Feb. 7.—**Trowbridge.**—Chippings.—For U.D.C. G. W. J. Clark, E. and S.

Feb. 7.—**Ventnor.**—Tar.—For U.D.C. J. Wearing, C.

Feb. 7.—**Wing.**—Granite, etc.—For R.D.C. J. L. A. Watson, S., 60, New-rd., Linslade, Leighton Buzzard.

Feb. 8.—**Belfast.**—Cement, etc.—For County Down Rly Co. H. E. Mellor, secretary, Queen's Quay Terminus.

Feb. 8.—**Blackburn.**—Highway Materials.—For C.B. H. M. Webb, B.E.

Feb. 8.—**Bootle.**—Highway Materials.—For C.B. B.E.

Feb. 8.—**Caterham.**—Road Materials.—For U.D.C. D. E. Biart, C.

Feb. 8.—**Dagenham.**—Tarmacadam.—For U.D.C. F. W. Allen, C.

Feb. 8.—**Driffield.**—Road Materials.—For R.D.C. C. H. Hines, S.

Feb. 8.—**Dublin.**—Steel Reinforcement.—For C.B. City E., 28, Castle-st.

Feb. 8.—**Escrick.**—Limestone, etc.—For R.D.C. J. R. Hudson, "Ashdene," Dunnington, York.

Feb. 8.—**London.**—Building Materials.—For Hackney B.C. P. Holt, B.E. and S.

Feb. 8.—**London.**—Builders' Materials.—For Shoreditch B.C. B.S.

Feb. 8.—**Middlesex.**—Road Materials.—For C.C. A. Dryland, C.E.

Feb. 8.—**Wells.**—Road Materials.—For R.D.C. S.

Feb. 9.—**Johannesburg.**—Tar.—2,600 tons of tar or tar substitute, for T.C. Department of Overseas Trade, 35, Old Queen-st., S.W.1. (Reference No. BX. 4121.)

Feb. 9.—**Leyton.**—Builder's Materials, etc.—For T.C. B.E. and S.

Feb. 9. — **North Riding of Yorkshire.** — Road Materials.—For C.C. C.S.

Feb. 9.—**Penge.**—Cement.—For U.D.C. S.

Feb. 10.—**Aberdeen.**—Road Materials.—For D.C. of C.C. Alex. Clark, District-Clerk, 7, Bon-Accord-sq., Aberdeen.

Feb. 10.—**Leeds.**—Sewer.—Sewer ironwork and galvanised dirt boxes, for T.C. W. T. Lancashire, City E.

Feb. 10.—**London.**—Paints.—For South Indian Rly. Co., Ltd. A. Muirhead, Managing Director, 91, Petty France, Westminster, S.W.

Feb. 11.—**Bedfordshire.**—Granite, etc.—For C.C. C.S.

Feb. 11.—**Dublin.**—Road Materials.—For C.B. T.C.

Feb. 11.—**Dublin.**—Builder's Materials.—For C.B. T.C.

Feb. 11. — **Eastbourne.** — Broken Granite.—For R.D.C. W. Walker, S.

Feb. 11.—**Gainsborough.**—Highway Materials.—For U.D.C. S. W. Parker, E. and S.

Feb. 11.—**Horsforth.**—Granite, etc.—For U.D.C. J. E. Aldersley, S.

Feb. 11.—**Isle of Ely.**—Granite, etc.—For C.C. R. S. W. Perkins, C.S.

Feb. 11.—**Isle of Ely.**—Highway Materials.—R. S. W. Perkins, C.S.

Feb. 11.—**London.** — Builder's Materials.—For B.G. Clerk.

Feb. 11. — **Maidstone.** — Road Materials.—For R.D.C. Clerk.

Feb. 11.—**Swansea.**—Highway Materials.—For C.B. B.S.

Feb. 11.—**Thirsk.**—Highway Materials.—For R.D.C. J. W. Lupton, S.

Feb. 13.—**Broadstairs and St. Peter's.**—Granite Kerbing.—For U.D.C. H. Hurd, S.

Feb. 13.—**Chatham.**—Road Materials.—For T.C. R. L. Honey, B.E. and S.

Feb. 13.—**Docking.**—Granite.—For R.D.C. R. W. Hindhaugh, S.

Feb. 13.—**Gosport.**—Cement, etc.—For T.C. B.E.

Feb. 13.—**Ruislip-Northwood.**—Road Materials.—For U.D.C. H. R. Metcalfe, E. and S.

Feb. 13.—**South Stoneham.**—Road Materials.—For R.D.C. W. R. Cowall, S.

Feb. 13.—**Southport.**—Road Materials.—For C.B. A. E. Jackson, B.E. and S.

Feb. 13.—**York.**—Highway Materials.—For T.C. F. W. Spurr, City E.

Feb. 14.—**Leeds.**—Lime.—For T.C. E. H. Howatson, Sewerage Engineer, 8, Park-sq.

Feb. 14.—**London.**—Paving Materials.—For Deptford B.C. T.C.

Feb. 14.—**Poole.**—Cement, etc.—For T.C. E. J. Goodacre, B.E.

Feb. 15.—**Halifax.**—Highways Materials.—For C.B. B.E.

Feb. 15. — **Horncastle.** — Road Materials.—For R.D.C. J. S. Derbyshire, S.

Feb. 15.—**London.**—Builder's Materials.—For Islington B.C. C. G. E. Fletcher, T.C.

Feb. 15.—**Salisbury.**—Builder's Materials.—For T.C. City E. and S.

Feb. 15.—**Warwickshire.**—Road Materials.—For C.C. D. H. Brown, C.S.

Feb. 16.—**London.**—Highway Materials, etc.—For Lambeth B.C. O. Cattlin, B.E.

Feb. 16.—**London.**—Road Materials.—For St. Marylebone B.C. T.C.

Feb. 16.—**Nottingham.**—Builder's Materials, etc.—For T.C. T. Wallis Gorden, City E. and S.

Feb. 17. — **Doncaster.**—Tarmacadam, etc.—For R.D.C. W. R. Crabtree, S.

Feb. 17.—**Leeds.**—Builder's Materials.—For T.C. C. Nelson Hefford, Manager, Electricity Department, 1, Whitehall-rd.

Feb. 17.—**Winchester.**—Road Materials.—For T.C. W. V. Anderson, City E.

Feb. 18.—**East Riding of Yorkshire.**—Road Materials.—For C.C. C.S.

Feb. 18.—**Eccles.**—Road Materials.—For T.C. B.S.

Feb. 18.—**Felixstowe.**—Cement, etc.—For U.D.C. H. Clegg, S.

Feb. 18.—**South Shields.**—Cement, etc.—For Corporation. S. G. Stanton, B.E.

Feb. 20.—**Easington.**—Highway Materials.—For R.D.C. R. U. Harper, S.

Feb. 20.—**London.**—Cast Iron Pipes.—For M.W.B. Chief Engineer.

Feb. 20.—**Maldens and Coombe.**—Builder's Materials.—For U.D.C. S.

Feb. 20.—**Waltham Holy Cross.**—Granite.—For U.D.C. W. C. Holloway, E. and S.

Feb. 21. — **Coventry.** — Builder's Materials.—For T.C. E. H. Ford, City E. and S.

Feb. 21.—**Erith.**—Road Materials.—For U.D.C. D. S. Twigg, C.

Feb. 21.—**Tottenham.** — Road Materials. — For U.D.C. E. Townson, C.

Feb. 22.—**Caistor.**—Road Materials.—For R.D.C. G. Riley, S.

Feb. 22.—**Godstone.**—Road Materials.—For R.D.C. G. E. Crowther, E. and S.

Feb. 22.—**London.**—Highway Materials.—For Fulham B.C. T.C.

Feb. 22.—**London.**—Stonework, etc.—For Hammersmith B.C. T.C.

Feb. 27.—**Long Eaton.**—Road Materials.—For U.D.C. H. Raven, S.

Feb. 29.—**Battersea.**—Materials, etc.—Tenders for materials, etc., for 3, 6 and 12 months from April 1 next for the Borough Council. Town Hall, Lavender Hill, S.W.1.

Mar. 1. — **Burnley.** — Highway Materials.—For R.D.C. F. Hewitt, S.

Mar. 1.—**Southend-on-Sea.**—Road Materials.—For C.B. Robert H. Dyer, B.E.

——.—**Bungay.**—Road Materials.—For U.D.C. H. Earl, S.

ENGINEERING, IRON AND STEEL.

Feb. 6.—**Cardiff.**—Improvements.—To south-east corner of Llandaff Bridge over the River Taff, for T.C. City E.

Feb. 9.—**Larne.**—Water Works.—Supplying and laying 187 lin. yds. of 3-in. cast-iron water pipes with necessary hydrants, fountains, valves, etc., and for other repair work at storage tank in connection with Glenarm water supply, for R.D.C. S. Robinson, surveyor, Victoria-st.

Feb. 9.—**Ventnor.**—Piling, etc.—Supply of materials and driving of Greenheart pile on east side of landing stage at Royal Victoria Pier, and for painting of pier superstructure, for U.D.C. Surveyor.

Feb. 13.—**Blackburn.**—Bridge.—Over Leeds and Liverpool Canal at Hall-st., for C.B. H. M. Webb, Borough and Water Engineer. Dep. £3 3s.

Feb. 15.—**London.**—Steelwork.—790 tons structural steel work for ironfoundry, together with corrugated asbestos sheets, patent glazing with wired glass, galvd. C.I. piping and fencing pales, etc., etc., for Madras and Southern Mahratta Rly. Co. Directors, 25, Buckingham Palace-rd., S.W.1.

Feb. 15.—**Portrane.**—Tank.—Ferro-concrete high level water tank, at Mental Hospital, for Joint Committee of Grangegorman Mental Hospital. Mr. P. H. McCarthy, engineer, 26, Lower Leeson-st., Dublin. Dep. £3 3s.

Feb. 23.—**Newry.**—Bridge.—Single-leaf steel swing bridge over canal at Godfrey Bridge, for U.D.C. C. Blaney, Town Surveyor. Dep. £1 1s.

ROAD, SEWERAGE, AND WATER WORKS.

Feb. 3.—**London.**—Paving.—Meadfoot-rd., Nimrod-rd., Farmhouse-rd., Larbert-rd., Granton-rd., and Green-lane, Streatham, for Wandsworth B.C. E. J. Elford, B.E., 215, Balham High-rd., S.W.17. Dep. £1 1s.

Feb. 6.—**Chingford.**—Making-up. — Beresford-rd. (part of), Douglas-rd., Victoria-rd. (part of), Hampton-rd. (part of), for U.D.C. S. J. Hellier, E. and S. Dep. £1 1s.

Feb. 6.—**Dundee.**—Main.—4,200 ft. of 10-in. internal diameter steel tubes, lined centrifugally with bituminous composition, and with ends prepared for victaulic joints, for T.C. George Baxter, Jr., Waterworks Engineer.

Feb. 6.—**Ennis.**—Improvements.—In connection with the Ennis Waterworks, for U.D.C. P. J. Meghen, B.E., Commissioner, Town Hall, Ennis, Co. Clare.

Feb. 6.—**Manchester.**—Paving.—Draining, paving (concrete), flagging (artificial flags), etc., Mauldeth-rd. West, Withington, from easterly side Hill-st., to point 139 yards distant in westerly direction; sewering, draining, paving (concrete), etc., passage adjoining 64, Branson-st. and 49, Cyrus-st. and the St. Philip's Church Army Room, Ancoats, for T.C. City S. Dep. £1.

Feb. 6.—**Pembroke.**—Development of following sites, including excavation or filling and formation of the roads, laying down of concrete roads and concrete side-walks; also sewers and water mains, for sites at Newbridge-av., "Willfield," Sandymount-av.; Belmont site, Donnybrook; and laying down of concrete roads only for sites at Irishtown-rd. (Fairview); Havelock, Bath-av.; Meleady's-field, Bath-av., for U.D.C. N. Montgomery, B.S. Dep. £1.

Feb. 6.—**Twickenham.**—Improvements.—Forming, levelling, kerbing, channelling, paving, metalling, concreting, and making good Colonial-av., Devoncroft-gdns., Poulett-gdns., Wellesley-rd., for T.C. F. W. Pearce, B.S. Dep. £1 1s.

Feb. 6.—**Twickenham.**—Paving.—Repaving with creosoted-deal blocks of an approximate area of 850 super. yds. of carriageway margins in London-rd., for T.C. F. W. Pearce, B.S. Dep. £1 1s.

Feb. 7.—**Deptford.**—Pumping Machinery.—At the Deptford pumping station, Brookmill-rd., Deptford, London, S.E.8, for M.W.B. Chief Engineer's Department (Room 173), 173, Rosebery-av., E.C.1. Dep. £3 3s.

Feb. 7.—**Doncaster.**—Sewer.—At Hexthorpe Flatts, for C.B. R. E. Ford, B.E.

Feb. 7.—**Devonside.**—Drainage.—Providing and laying about 3,500 yds. of 9-in. and 6-in. diameter fireclay pipe sewers and construction of sewerage purification works, for Clackmannanshire C.C. Carfrae & Morrison, C.E., 4, Hill-st., Edinburgh. Dep. £1.

Feb. 7.—**London.**—Paving.—Also forming roadway about 8,200 sq. yds., and footways about 4,200 sq. yds. of Bellingham-rd. (part of), Catford, and for paving and forming footway only of Bromley-hill (part of), for Lewisham B.C. J. W. Shuter, T.C.

Feb. 7.—**Willesden.**—Making-up.—Geary-rd., Dollis Hill, N.W.10, for U.D.C. F. Wilkinson, engineer.

Feb. 8.—**Doncaster.**—Sewers.—At Town Field, for C.B. R. E. Ford, Borough Engineer.

Feb. 9.—**Leeds.**—Paving.—For (a) kerbing, tar paving and flagging footpaths, paving channels and tar macadamising carriageways in Rider's-bdgs., King's-mount (part), Temperance-fold, Saville-ter. (Shadwell), Allerton-place, (b) kerbing, flagging, paving channels, Armley Ridge-rd., King-lane, Stainbeck-lane, York-rd., for T.C. E. W. Cockerlyne, Highways Engineer. Dep. £1 1s.

Feb. 10.—**Dolgelley.**—Sewerage.—Providing and laying 1,300 lin. yds. 9-in. cast-iron and stoneware pipe sewers, 1,400 lin. yds. 6-in. cast-iron and stoneware pipe sewers, and 130 lin. yds. 12-in. cast-iron sea outfall sewer, together with manholes, flushing tanks, ventilating columns, storage tank, and other appurtenant works at Llwyngwril, for R.D.C. F. J. Rodwell, of Spinks, Pilling & Rodwell, chartered engineers, 37 and 38, Prudential-buildings, Park-row, Leeds. Dep. £3 3s.

Feb. 10.—**Leeds.**—Repairing.—Path from kitchen to nurses' home entrance at St. Mary's Infirmary, Armley, for B.G. J. H. Ford, Clerk, 11, South Parade.

Feb. 10.—**Looe.**—Making up.—Portion of Hannafore Back-rd., for U.D.C. G. H. Ivory, S.

Feb. 11.—**Alton.**—Sewer.—99 yds. of 6 in. iron sewer, 470 yds. of 9-in. stoneware sewer, and 250 yds. of 6-in. and 4-in. stoneware drain with manholes, etc., for U.D.C. S. Dep. £1 1s.

Feb. 11.—**Great Ouseburn.**—Sewerage.—1,700 lin. yds. of pipe sewers varying in size from 9 in. to 18-in. diameter, together with manholes and other works, in Acomb, for R.D.C. E. J. Silcock, engineer, 25, Victoria-st., Westminster, S.W.1. Dep. £5.

Feb. 11.—**Penge.**—Road.—Breaking-up concrete foundation on double track and margins of Croydon-rd., Penge, from Avenue-rd. to High-st., reforming of concrete foundation and paving with creosoted wood block, etc., for U.D.C. Col. H. W. Longdin, surveyor.

Feb. 11.—**Reigate.**—Reconstruction.—Of part of carriageway, including laying of new granite sett margin for distance of 600 yds. and surface water drainage works on main Reigate-London-rd., at Reigate-hill, between Glovers Farm and the borough boundary, for T.C. F. T. Clayton, B.E. and S. Dep. £2 2s.

Feb. 11.—**Reigate.**—Road.—Mastic asphalte resurfacing works and reinforced concrete foundation to be carried out on following roads:—(1) London-rd., Redhill (Gloucester-rd. to Frenches-rd.); (2) Blackborough-rd., Reigate (Chart-lane to Crakell-rd.), for T.C. F. T. Clayton, B.E. and S. Dep. £2 2s.

Feb. 11.—**Skegness.**—Sewer.—Construction of a soil sewer at Sandbeck-av., lying between Briar-way and a point 326 yds. eastwards, for U.D.C. S. Dep. £1.

Feb. 13.—**Darton.**—Mains.—Supplying and laying of about 335 lin. yds. of 3-inch cast-iron water mains, together wth appurtenant works, for purposes connected with a supply of water to Barugh Chemical Works, Barugh, near Barnsley, for U.D.C. P. Wilkinson, Waterworks Manager. Dep. £1.

Feb. 13.—**Doncaster.**—Roads.—Construction of roads and footpaths and construction of length of sewer on Woodfield-lane site, together with the formation of recreation ground on the Warmsworth-rd (north) site, for C.B. R. E. Ford, Borough Engineer.

Feb. 13.—**Manchester.**—Sewering.—Also draining, paving (tarmacadam and concrete), flagging, and completing various roads on Blackley estate, Areas Nos. 2 and 5, for T.C. City E. Dep. £1 1s.

Feb. 13.—**Mitcham.**—Making-up.—Seely-rd., for U.D.C. S.

Feb. 13.—**North Riding of Yorkshire.**—Widening.—Also strengthening, re-surfacing, etc., of approximately 4½ miles of main road, between Scarborough and Filey, for C.C. C.S.

Feb. 14.—**Barking.**—Road and Sewer Work.—Formation and kerbing, etc., of roads and the construction of soil sewers and surface water sewers, manholes, ventilators, etc., on the Upney Farm Housing Estate for the Barking Town U.D.C. R. A. Lav, Assoc.M.Inst.C.E., B.S., Public Offices, Barking.

Feb. 14.—**Barnes.**—Making-up.—Lowther-rd. and Bicester-rd. (part 2), Mortlake, for U.D.C. F. P. Kindell, E. and S. Dep. £2 2s.

Feb. 14.—**Prestwich.**—Making-up.—Sewering and draining of Chandos-rd., for U.D.C. M. A. Piercy, E. and S. Dep. £1 1s.

Feb. 14.—**Prestwich.**—Sewers.—Roads and sewers on line of Heys-rd. and Heywood-rd., and extension of Deyne Valley sewer, for U.D.C. S. Dep. £3 3s.

Feb. 14.—**South Dublin.**—Extensions.—Sewer extension: Kimmage-rd., Terenure, 380 yds. 9-in. and 400 yds. 6-in. stoneware pipe sewer. Water extensions: (a) Knocklyon-rd., Templeogue, 720 yds. 6-in. c.i. pipe; (b) Balrothery (Wellington-lane), 770 yds. 3 in. c.i. pipe; (c) Rathfarnham (St. Patrick's), 740 yds. 3-in. c.i. pipe, for R.D.C. G. Gallagher, C., 1, James's-st., Dublin. Dep. £1 1s.

Feb. 16.—**Liskeard.**—Macadam.—Providing and laying bituminous macadam upon St. Cleer, Redgate, and Minions-rd., for R.D.C. Wm. Cradick, Northern Surveyor, Addington, Liskeard.

Feb. 16.—**West Ham.**—Making-up.—Roadways in Whipps Cross Hospital, Whipps Cross-rd., Leytonstone, E.11, for B.G. L. E. Fraquet, Clerk.

Feb. 18.—**Eccles.**—Surfacing.—Of Peel Green-rd., from Barton-rd. to Higher Croft, for T.C. B.S.

Feb. 18.—**Oldham.**—Pipes.—In connection with new power station, Slacks Valley, Chadderton, F. L. Ogden, Borough Electrical Engineer. Dep. £1 1s.

Feb. 18.—**Wirral.**—Making-up of Rocky-lane South, Heswall, for R.D.C. S. H. Davies, Highways Surveyor.

Feb. 20.—**Cork.**—Macadam.—Laying about 69,000 super yds. of bituminous macadam on trunk road from Cork to Limerick, between Monard and Rathduff, for C.C. R. F. O'Connor, C.S.

Feb. 20.—**Kent.**—Pipelaying.—Pipelaying, alterations and bricklayers' work within areas of Kent, northern, southern and western districts, for M.W.B. Chief Engineer.

Feb. 20.—**London.**—Paving.—New wood block paving on reinforced concrete foundations in Commercial-rd., Peckham, S.E.15, for Camberwell B.C. W. Bell, B.E. and S.

Feb. 20.—**London.**—Pipework.—For Greenwich Power Station, for L.C.C. Montagu H. Cox. Dep. £2.

Feb. 20.—**Swindon.**—Extensions.—Construction of approximately 3¼ miles of 16-in. and ¾ mile of 12-in. trunk mains and other incidental works in parishes of Ogbourne St. George, Chiseldon, Wroughton and Swindon, for T.C. J. B. L. Thompson, B.S., 34, Regent-circus. Dep. £3 3s.

Feb. 21.—**Hailsham.**—Roads.—Concrete roads at Polegate, near Eastbourne, for R.D.C. W. O. Humphery, E. and S. Dep. £2 2s.

Feb. 21.—**New Zealand.**—Deviation.—Construction of Wellington-Tawa flat deviation, Wellington-New Plymouth Railway, for Public Works Dept., Wellington. Commissioner for New Zealand, 415, Strand, London, W.C.2.

Feb. 24.—**Sowerby.**—Conversion of sewage disposal works to the simplex surface aeration system, for U.D.C. J. Eastwood, S. Dep. £3.

Feb. 25.—**Cumberland.**—Surface tarring.—For C.C. G. O. Lockwood, C.S.

Feb. 25.—**Huyton-with-Roby.**—Conversion.—Of 27 midden privies and 10 pail closets to water closets, for U.D.C. Sanitary Inspector. Dep. £2.

Feb. 25.—**Pontefract.**—Making-up.—Part of Headlands-lane and street, off Sessions House-yard, for T.C. W. H. Newton, B.E. Dep. £3 2s.

Competitions.

(*See Competition News, p.* 208.)

Auction Sales, Tenders, etc.

Feb. 3, 6, 7, 8 and 9.—**Canterbury.**—Street and Lewis will offer for sale on the premises, "Hales Place," Canterbury, fixtures and fittings previous to demolition of the Mansion, contents of the chapel and theatre. The outside effects. The fabric of the mansion will be sold for demolition. Auctioneers, 21, North Audley-st., Grosvenor-sq., London, W.1.

✱ Feb. 7.—**Bunwell, Norfolk.**—W. S. Hall and Palmer will sell for H. Harper Smith (Trustee re. E. J. Smith), at steam joinery works, Bunwell, joinery and other machinery, lorry, touring car, etc. Auctioneers, Wymondham, Norfolk.

Feb. 7.—**Shrewsbury.**—Joseph Hibbard & Sons will sell without reserve, by order of the liquidator, B. N. Watkins, A.C.A., re Barker Bros. (Shrewsbury), Ltd., in voluntary liquidation, upon the premises at Smithfield-rd., sawmill plant, office furniture, also freehold premises. Auctioneers, 15, Newington-green, Islington, London, N.16.

✱ Feb. 8.—**Acton, W.3.**—Offers for the purchase of clinker and ashes from the destructor, Wales Farm-rd., for a period of twelve months, commencing April 1, 1928. Borough Engineer, Municipal Offices, Acton, W.3.

At an early date.—**Windsor.**—Knight, Frank & Rutley will sell in blocks or in numerous lots (unless disposed of privately), by direction of the Council of the Imperial Service College Trust, freehold building land on the western fringe of the Royal Borough. Auctioneers, 20, Hanover-sq., London, W.1.

Public Appointments.

✱ Feb. 3.—**Ilford.**—Clerk of Works.—Required by the Corporation. H. Shaw, M.Inst.C.E., Architect to the Education Committee, Town Hall, Ilford.

✱ Feb. 7.—**Leicester.**—Clerk of Works required for about eighteen months to supervise the erection of new elementary school buildings, for the Leicester E.C. F. P. Armitage, Director of Education, Town Hall, Leicester.

Feb. 8.—**Leicester.**—Chief Architectural Assistant in the Dept. of the City Engineer and Surveyor required by the City Council. A. T. Gooseman, M.Inst.C.E., City Engineer and Surveyor, Town Hall, Leicester.

Feb. 11.—**London.**—Secretary required for the Royal Sanitary Institute, to take up duty at the end of June next. Chairman to the Council, 90, Buckingham Palace-rd., London, S.W.1.

Feb. 13.—**Southend-on-Sea.**—Principal required at the Municipal School of Arts and Crafts by the Southend-on-Sea Education Committee. John Sargent, Director of Education, Education Office, 20, Warrior-sq., Southend-on-Sea.

Extensions to Blackpool Sanatorium.

The Medical Officer of Health and the Borough Surveyor have been authorised by the Blackpool County Borough to submit draft plans of proposed extensions at the Sanatorium, Talbot-road, to the Ministry of Health.

TRADE ITEMS

"Coloured Cements."

Under this title, we have received from Messrs. G. and T. Earle (1925), Ltd., of Hull, a booklet of hints on how to use coloured cements, which should be in every contractor's and decorator's hands. The booklet is subdivided into sections, of which the following are examples of the subjects dealt with: Preparation of Walls; Trowelling; Protection of Coloured Cement Work from Weather Conditions; Quantities, etc.

Metalisation of Materials.

A new invention, whereby a wide range of materials may be "metalised," was described at a gathering at the Hotel Victoria on Monday last.

The distinctive characteristic of the process is that the metal and the material interpenetrate to a certain thickness, thereby forming to that extent a quite new material, combining the qualities of both the original material and the applied metal. It is not a coating which peels off.

Metalisation as applied to timber is claimed to act as a preservative and to retain its resiliency, while adding tensile strength. The metalisation protects against weathering and is said to be especially useful for piles for docks or for wood which has to be placed in water. It also protects against inroads of insects, and of the death watch beetle. It can be applied to three-ply wood to overcome its liability to break away; it forms a protection from moisture and imparts a veneer finish. It is claimed to make glass and pottery unbreakable, and is useful for decorative filigree work. Among other uses it may be adapted to ornamental wallpapers. The process is handled by British Airships, Ltd., 21, Northumberland-avenue, W.C.2.

The Standard Building Contract.

General meetings of the National Federation of Building Trades Employers and of the Royal Institute of British Architects, says the *Times*, have had under consideration the proposed new form of building contract which was drawn up by a joint committee of the two bodies. The building trade employers approved the new contract. The decision of the architects was deferred until the next general meeting of the Institute, which will be held early in March.

The standard form of contract for the building industry, as agreed between representatives of the Royal Institute of British Architects and the Federation of Master Builders, was reported on January 25 to the Council of the R.I.B.A. The report was received, and a recommendation was passed that the standard form should be adopted; that other forms at present in force should be withdrawn; and that a resolution to that effect should be presented to a general meeting of the R.I.B.A., also held on Wednesday, after the meeting of the Council.

At the general meeting the resolution of the Council was presented, and the discussion furnished evidence that the alterations as between existing forms and the form proposed presented some difficulty in the minds of members present. The difficulties in respect of particular clauses were indicated by members, and the meeting was adjourned in order to give a reasonable opportunity for the consideration of the form prior to its adoption. A motion to that effect being proposed, the Council intimated that, in view of the comparatively short time which had elapsed between the agreement of the form and its presentation to the general meeting, it was not unreasonable that such a motion should be advanced, and the Council felt that it would be unreasonable for it to oppose such a motion, which was thereupon accepted.

It is understood that in the discussion none of the broad principles of the measure was controverted, but that upon a number of important but minor points information was desired.

PROPOSED NEW BUILDINGS & OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board; Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

Ashby-le-la-Zouch.—Sir Joseph Hood given £1,000 towards building swimming baths.

Atherton.—H.M.O.W. have acquired a site at Crab Tree-lane, for employment exchange. Architects' Department, H.M.O.W., S.W.1, Architects.

Barking.—Hospital Sub-Committee has instructed the architect to submit alternative plans for isolation hospital on site at Upney.

Barnsley.—The T.C. proposes (subject M.H.) to erect abattoir, at £33,250.

Basingstoke.—T.C. propose to convert Mechanics' Institute into a free library.

Beddington and Wallington.—Following a letter notifying the M.H.'s approval of acceptance of C. J. Doyle's tender for the erection of 74 houses at Bute-rd., the Housing Committee of U.D.C. resolved that Clerk be instructed to inform the Ministry that the general conditions for erection of houses provided that the erection of the 74 houses should be completed within 12 months from the date of the Surveyor's order. The Public Health Committee recommend Council to approach Joint Fire Protection Committee with a view to ascertaining whether the fire escape could be removed from Melbourne-rd., and that Surveyor be instructed to prepare plans of convenience which might be erected on site suggested for that purpose. Plans approved:—Four houses, Great Woodcote-park, near Forester's-drive, for W. Martin; 37 houses, Bandon Hill allotments, comprised of three blocks of three and 14 pairs, for J. Midmer; eight shops in one block, Market-st., for T. Markwick & Co.

Bexhill.—T.C. passed plans:—3 detached houses, Collington-lane, J. E. Maynard, for F. J. Harris; 3 houses, Piemont-gardens, J. E. Maynard, for W. P. Glessing.

Blackpool.—Whittaker & Gardner, 16, Edward-st., are preparng a scheme for Mr. & Mrs. Pritchard, for cinema at Lytham-rd., South Shore.

Bridlington.—S. Clapham, managing director of Lounge (Esplanade) Cafe Co., submitted plans for new premises.

Bournemouth.—Commencement is shortly to be made with extension of West Undercliff Promenade to Durley Chine, at £40,000.

Brighton.—Corporation are to reconstruct Sun-st. area, which has 188 houses on three acres.

Bury.—Housing Committee decided to recommend Council to apply to M.H. for £58,645 for 120 houses on St. Stephen's estate, Bolton-rd.

Cambridge.—T.C. passed plans:—23 houses, Montreal-rd. and Hobart-rd., Cambridge Housing Society, Ltd.

Carlisle.—Chapel is to be built at Digton-rd., to seat 560, at £15,482. Also school chapel at Thornhill, Whitehaven Circuit, at £2,247.

Carlisle.—City Council is considering extension of secondary education which would cost £80,000.

Cheam (Surrey).—New grocery, provision and butchery stores is to be built by South Suburban Co-operative Society, Ltd., Croydon. Plans by Bethell, Swanwell & Dunsford, 16a, John-st., W.C.2.

Chester.—T.C. are to make application to M.H. for £56,398 for 152 houses on Eaton-rd. estate.—Council also resolved to take down existing wall and erect a wall with cement panels on west side of Frodsham-st. parking ground, at £250.

Corsham.—Chippenham R.D.C. are to erect 20 houses.

Coventry.—C.C. proposes to construct water works, etc., for which Bill has been deposited in Parliament.

Cranleigh.—P.C. have approved plans for parish hall, at £3,500.

Croydon.—Plans passed by T.C.:—F. A. Reed, 3 garages, 81-83, Northwood-rd., at rear; J. Maclaren Ross, of 21, Palace-st., S.W.1, 7 houses, Warminster-rd.; E. W. Wallis, of 365, Norwood-rd., S.E.27, 2 houses, Norbury-hill; P. L. Richardson, Church-rd., S.E.19, 2 garages and convert house into 2 flats, 9, Beulah-hill; P. Richardson, 136, Addiscombe-rd., 63 houses in lieu of 64, and 54 garages, Nursery-avenue and Nursery-close; A. J. Perriam, 41, Quadrant-rd., 4 garages and convert stables into garages, 42, Kidderminster-rd., at rear; D. Morris & Sons, Ltd., 14, Regent-st., S.W.1, 7 shops with living rooms over, London-rd., corner Pollards-hill, S.; Berney & Son, High-st., public house, Whitehorse-lane, at Canham-rd.; Corporation of Croydon, Town Hall, extension of slipper baths, Scarbrook-rd.; Clayton & Black, 10, Prince Albert-st., Brighton, alterations to form manager's quarters, 108, North-end.

Darley Dale.—The Northwood Estates Co. propose 7 houses at Northwood.

Droxford.—U.D.C. passed plans for house at Droxford, hall at Exton, and Council school at Droxford.

East Barnet.—U.D.C. passed plans: seven houses Barons'-gate for H. E. Percy; additions to factory, Brunswick Park-rd., for Carr and Son.

Edgware.—Widening Edgware-rd. and Church-lane, Edgware, will cost £97,500.

Erith.—U.D.C. passed plans:—6 houses adjoining "The Mansells," Bexley-rd., Erith, A. H. Jennings; shops and assembly hall, Bexley-rd., Belvedere, Royal Arsenal Co-operative Society, Ltd., S. W. Ackroyd.

Exeter.—It is recommended to the City Council that the building of houses be permitted on all parts of Babbs Barn estate—70 in all.

Finchley.—Proposed alterations to Finchley parish church to give 220 more seats will cost £7,000.

Fladbury.—The P.C. are requesting the R.D.C. to erect 8 houses.

Grantham.—Plans been prepared by W. Bond, F.R.I.B.A., for new Catholic school. Accommodation will be provided for 120 children.

Hassocks.—Site near Friar's Oak has been offered for church.

Haywards Heath.—Brighton C.B. Mental Hospital are to erect 16 houses for the staff to the north of Asylum-rd.

High Heaton.—Newcastle Co-op. Society are to erect new shops on Newton-rd.

Hounslow.—Plans for development of 10 acres of land between Kingsley-rd. and Spring-grove, been prepared by P. Chase Gardner & Co., architects and surveyors, High-st.

Ilford.—T.C. passed: A. P. Griggs, 8 houses and garages, 1-15, Rochester-gardens; A. Smith, 4 houses and garages, 225-231, Beehive-lane; A. P. Griggs, 5 houses and garages, 41-49, Exeter-gardens; Ulyett & Co., 4 shops and dwellings, 359-365, Green-lane; A. P. Griggs, 4 houses and garages, 33-39, Exeter-gardens.

Ingatestone.—War Office have sanctioned the purchase of site for a drill hall by the Essex County Territorial Force Association. Architects are Roddick, Colvin & Clarke, 4, Adelphi-terrace, W.C.2.

Kidderminster.—Worcestershire T.A. have decided upon the reconstruction of the "Shrubbery," Kidderminster, as headquarters.

Leatherhead.—Surrey C.C. is supporting proposed construction of a by-pass road round Leatherhead.

Leeds.—Baptists have acquired site in Stainbeck-lane, for Baptist Chapel. Other sites have been acquired on the Halton and Wyther housing estates. Plans are being prepared for cinema and shops at Well-lane, Chapeltown. C. Hall & Sons, architects.

London (Barnet).—Parish hall is to be built, at £1,200.

London (Clapham).—Funds being raised for building school hall for boys of St. John's "Bowyer" school, Clapham.

London (Dagenham).—The U.D.C. has received L.C.C.'s permission to erect underground sanitary conveniences at Ripple-rd., Dagenham.

London (Deptford).—L.C.C. recommend new house for Supt, Deptford pumping station, at £1,400.

"HENDERSON"

SLIDING DOOR GEAR

FOR FACTORIES, GARAGES, SCHOOLS, ETC.,

"TANGENT JUNIOR" FOR LIGHT DOORS
"TANGENT SENIOR" FOR HEAVY DOORS

WRITE FOR BOUND CATALOGUE B.26 TO:-

P.C.HENDERSON, LIMITED,

TANGENT WORKS, BARKING, ESSEX.

London (Deptford).—B.C. passed plans:—P. J. Westwood, 14, Buckingham-st., Adelphi, W.C.2, 164, High-st., rebuild and redrain shop premises in connection with existing system; Truman, Hanbury, Buxton & Co., Ltd., Spitalfields, E.1, 67-69, Dennetts-rd., rebuild and redrain premises in connection with existing system.

London (E. Barnet).—Plans were approved by U.D.C. of 7 houses on the south-east side of Barons Gate for H. E. Percy; additions to factory in Brunswick Park-rd., for Carr & Son.

London (Lambeth).—B.C. recommend sanction to construction of new underground convenience for men at Rushcroft-rd., Brixton.—Plans passed: T. P. Bennett & Son, one story building at Brixton-hill, to abut upon New Park-rd.; Royal Arsenal Co-operative Society, amended application for proposed building at Nos. 283-291, Wandsworth-rd., to abut upon Camelia-st. and Cavendish-grove; E. W. Wallis, garages upon the northern side of Craignair-rd.

London (Oxford-st.).—Shop and display fronts, etc., are to be installed at 486, Oxford-st., W.1, for Carlton Shoe Co., Ltd. Contractors, Parnall & Sons, Ltd., Langham House, Regent-st., W.1.

London (Regent-st.).—Alterations, including new shop fittings, etc., are to be effected at 285, Regent-st., W.1., for Hopean Bros.

Luton.—T.C. are to spend £186,583 on electricity extensions.—Council resolved unanimously: (a) That scheme for construction of a separate building comprising a new committee-room and improved cloak-room accommodation, at an estimated cost of £650.

Manchester.—H. M. Robsen is proposing 52 lock-up garages on Carlton-st., Moss Side. Plans prepared by H. F. V. Newsome, A. and S., 2, Blue Boar-court.

Mansfield.—T.C. passed plans:—J. E. Baggaley, 4 houses, Big Barn-lane; Radford & Jenkins, 2 bungalows, Columbia-av.

Merton Park.—Surrey C.C. is to build a bridge over railway level crossing at Merton Park.

Northampton.—Proposed to enlarge the county offices at a cost of approximately £20,000. Plans by Talbot Brown & Fisher, FF.R.I.B.A., Burystead-place, Wellingborough.

Northampton.—C.B. passed plans:—Eight houses, Gipsy-lane, A. L. & H. W. Chown; warehouse, factory and offices, Chaucer-st., Goodliff Manufacturing Co., Ltd.; new w.c. and staircase to grandstand, County Ground, Northampton Town Football Club Co., Ltd.; alterations and additions, Harborough Arms, St. James'-rd., Northampton Brewery Co., Ltd.; four houses, Delapre Crescent-rd., S. G. Sale & Co.; two houses, The Drive, A. P. Hawtin & Sons, Ltd.; showroom over existing warehouse, 12 and 14, Wood-st., A. R. & W. Cleaver, Ltd.

Preston.—T.C. passed plans: G. Moorcroft, 4 houses, Burnside-av., and 4 houses, Woodside and Moorside-avenues; H. Heaton, 5 houses, Norris-st. and Brook-st.; A. C. M. Lillie, offices and works, Addison-rd.; W. Smirk, 5 houses and shops, Waterlane.

Salford.—C.B. recommend proposal of Electricity Committee to borrow £20,727 to cover excess expenditure in connection with erection and completion of Agecroft Electricity Generating station.

Scarborough.—Electricity Committee are to convert 89 and 89a, Westborough, into showrooms, at £2,000.

Sheffield.—Managers of Technical School had plans prepared for erection of a new mining department, at £16,000.

Slough.—U.D.C. passed plans: ten houses in St. Paul's-av., for S. R. Bloxsome; four, Burlington-av., for J. A. Simons.

Southampton.—T.C. are considering scheme for erection of flats to clear slum areas.

Southend.—Subject to approval of B. of E. and M. of H., Southend is to have an open-air school for delicate children, at £9,400. Proposed school will probably be off Fairfax-drive, Westcliff.

Stanford-le-Hope.—Plans have been prepared by Messrs. Roddick, Colvin & Clarke, 4, Adelphi-ter., W.C.2, for new drill hall and headquarters in Corringham-rd., for 312th Anti-Aircraft Searchlight Co., R.E.

Thornton Cleveleys.—Town Planning scheme been amended so as to create shopping area at junction of Holmes and Marsh-rds., and plans of house and house and shop in Holmes-rd., for W. Bunce, been approved.

Torquay.—T.C. propose to throw out over the sea from Princes Gardens a circular platform with bandstand, promenades, and glass-screened shelters, giving accommodation to between 2,000 and 3,000 people.

Tynemouth.—T.C. passed plans: 14 semi-detached houses, Houghton-av., St. George's estate, by F. R. N. Haswell and Son, for J. and J. Robison; extensions, Tynemouth and district laundry, Tynemouth-rd., by Dixon & Bell, for Tynemouth and District Laundry Co., Ltd.; semi-detached villas, Dene-rd., Tynemouth, by S. J. Stephenson, for W. Smelt; 8 semi-detached houses, Cartington-rd., Balkwell, by W. Stockdale, for W. Moore; shops and flats, corner St. George's-crescent and Chirton-green, by F. R. N. Haswell & Son, for Chisholm & and Co.; 4 semi-detached houses, Chirton-green estate, by F. R. N. Haswell & Son, for Chisholm & Co.

Workington.—P. K. Browne, L.R.I.B.A., 35, Pearl-buildings, Northumberland-st., Newcastle-on-Tyne, is preparing plans for rebuilding Opera House.

York.—M.H. held inquiry into application of Corporation to borrow £2,233 for erection of a women's convenience in St. Sampson's-sq.

FIRE.

Motherwell.—Fire which caused considerable damage to a number of householders has occurred at Lanarkshire Tramway Company's depot, Hamilton-rd. Damage is estimated roughly at £20,000.

* See also our List of Contracts, Competitions, etc.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.	£	s.	d.
Best Stocks	4	5	6
Second Hard Stocks	3	19	6

Per 1,000. Delivered at London Goods Stations.

	£	s.	d.		£	s.	d.
Flettons, at King's Cross	2	12	3	Best Blue Pressed Staffs	9	5	0
Do., grooved for Plaster	2	14	3	Do. Bullnose	9	15	0
Do., Bullnose	3	6	3	Blue Wire Cuts	7	5	0
Best Stourbridge Fire Brick :—							
2½ in.	8	11	0	3 in.	10	3	0
GLAZED BRICKS—							
Best White Ivory, and Salt Glazed Stretchers	21	0	0	D'ble Str'tch'rs	29	10	0
				D'ble Headers	26	10	0
				One Side and two Ends	30	10	0
Headers	29	10	0	Two Sides and one End	31	10	0
Quoins, Bullnose and 4½in. Splays and Flats	27	10	0	Squints	28	0	0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.
Delivered London.

	s.	d.		s.	d.
2 in. per yd. super.	1	11	3 in. per yd. super.	2	9
2½ in. „ „	2	4	4 in. „ „	3	6

	s.	d.	
Thames Ballast	10	6	per yd.
Pit Sand	13	9	„ „
Thames Sand	14	6	„ „
Best Washed Sand	14	6	„ „
¾ in. Shingle for Ferro-Concrete	12	9	„ „
¼ in.	14	0	„ „
¾ in. Broken Brick	11	6	„ „
Pan Breeze	8	0	„ „

} delivered 2 miles radius Paddington

Per ton delivered in London area in full van loads.

Best Portland Cement. British.

Standard Specification. Test £2 13 0 to £2 15 0 40s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0	10	0
Super Cement (Waterproof)	4	3	0
Roman Cement	8	15	0
Parian Cement	5	15	0
Keene's Cement, White	5	15	0
„ „ Pink	5	10	0
Plaster, Coarse, Pink	3	0	0
„ „ White	3	12	6
„ Fine	5	12	0
Sirapite, Coarse	3	9	0
„ Finish	3	17	0
Grey Stone Lime	2	10	9
Chalk Lime	2	10	9
Best Ground Blue Lias Lime per cwt.	1	17	6
Hair	2	2	6
Granite Chippings	1	12	0

NOTE.—Sacks are charged 1s. 0d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.

Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dp.

STONE.

	s.	d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2	10
BEER STONE—RANDOM BLOCK—		
Free on rail at Seaton Station, per ft. cube	2	3
Delivered free on rail Nine Elms, S.R. per ft. cube	3	1½
Selected approximate size one way, 1d. per cubic foot extra ; selected approximately three sizes or for special work, 3d. per cubic foot extra.		
PORTLAND STONE.—		
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S.Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4	4½
Do. do. delivered on road wagons at above stations, per ft. cube	4	5½
White basebed, 3d. per ft. cube extra.		
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.		
HOPTON-WOOD STONE—		
Delivered at any Goods Station, London.	s.	d.
Random blocks, from 10 ft. and over P. ft. cb.	17	0
Sawn two sides „	27	0
Sawn three or four sides „	32	0
YORK STONE, BLUE—*Robin Hood Quality.*		
Delivered at any Goods Station, London.		
6 in. sawn two sides landings to sizes (under 30 ft. super) Per ft. super	5	6
6 in. rubbed two sides, ditto „	6	0
3 in. sawn two sides slabs (random sizes) „	2	3½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1	6½
1½ in. to 2 in. ditto, ditto „	1	3½
HARD YORK—		
Delivered at any Goods Station, London.		
Scappled random blocks Per ft. cube	6	3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5	1½
6 in. rubbed two sides, ditto „	6	1½
4 in. sawn two sides slabs (random sizes) „	2	1½
3 in. ditto ditto „	2	10
2 in. self-faced random flags .. Per yd. super.	8	8

CAST STONE.

Delivered in London area in full-van loads, per ft. cube:—Plain, 8s. 6d.; Moulded, 9s. 6d.; Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£30 0	3 × 6	£21 0
4 × 9	26 0	3 × 11	25 0
4 × 8	25 0	2 × 11	26 0
4 × 7	23 0	3 × 9	24 0
3 × 8	22 0	2½ × 9	24 0
3 × 7	22 0	3 × 4½	21 0
2½ × 7	21 0	3 × 4	21 0

PLANED BOARDS.

1 × 11	£30 0	1 × 9	£28 0

PLAIN EDGE FLOORING.

Inches	per sq.	Inches.	per sq.
¾	18/-	1¼	30/-
¼	21/-	1½	34/-
1	24/-		

TONGUED AND GROOVED FLOORING

Inches.	per sq.
1	24/-
1¼	30/-
1½	34/-

MATCHING (BEST).

Inches.	per sq.
¾	16/6
¼	19/-
1	24/-

Ins. BATTENS.	s.	d.	SAWN LATHS.	s.	d.
¾ × 2 .... per 100 ft.	2	6	Per bundle	2	6

1" AND UP THICK.

	£	s.	d.	£	s.	d.
Dry Austrian Wainscot, per ft. cube	0	16	0	to 0	18	0
Dry American and/or Japanese Figured Oak, ft. cube	0	14	0	to 0	15	0
Dry American and/or Japanese Plain Oak, ft. cube	0	10	0	to 0	13	0
Dry sq. edged Honduras Mahogany, ft. cube	0	15	0	to 0	18	0
Dry Log cut Honduras Mahogany, ft. cube	0	16	0	to 1	1	0
Dry Cuba Mahogany, ft. cube	1	1	0	to 1	10	0
Dry Teak, ft. cube	0	13	0	to 0	15	0
Dry American Whitewood, ft. cube	0	10	0	to 0	14	0
Best Scotch glue, per cwt.	4	10	0	to —		
Liquid Glue, per cwt.	4	7	0	to 5	10	0

SLATES

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000.

	£	s.	d.		£	s.	d.
24 by 12	32	18	4	18 by 10	18	12	11
22 by 12	29	17	11	18 by 9	16	9	2
22 by 11	27	14	2	16 by 10	15	12	6
20 by 12	26	5	0	16 by 8	12	3	9
20 by 10	22	10	0				

TILES.

Delivered at London rate stations in full truckloads of not less than 6 tons. Per 1,000 f.o.r. London.

		£	s.	d.
Best machine-made tiles from Broseley or Staffordshire district		5	7	6
ditto hand-made ditto		5	17	6
Ornamental ditto		6	2	6
Hip and valley tiles (per dozen)	Hand-made	0	9	6
	Machine-made	0	9	0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—

	£	s.	d.
R.S. Joists, cut and fitted	12	10	0
Plain Compound Girders	14	10	0
„ Stanchions	16	10	0
In Roof Work	19	10	0

MILD STEEL ROUNDS.—To London Station, per ton.

Diameter.	£	s.	d.	Diameter.	£	s.	d.
½ in.	12	0	0	⅝ in. to ¼ in.	10	15	0
⅜ in.	11	0	0	⅜ in. to 2¾ in.	10	10	0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	TUBES. Wrought Mild Steel.	Genu-ine Staffs. Iron.	FITTINGS. ½ in. and under.	Over ½ in.	FLANGES. ½ in. and under.	Over ½ in.
	%	%	%	%	%	%
Gas ..	67½	50	42½	45	52½	55
Water ..	63½	46½	37½	40	47½	50
Steam ..	60	42½	32½	35	42½	45
Galv. gas ..	55	37½	32½	35	42½	45
Galv. water	50	32½	27½	30	37½	40
Galv. steam	45	27½	22½	25	32½	35

C.I.—HALF-ROUND GUTTERS—London Prices ex Works

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/3½	11½d.	3½d.
3½ in.	1/4½	1/1½	3½d.
4 in.	1/6	1/3	3½d.
4½ in.	1/7½	1/4½	4½d.
5 in.	1/10½	1/6½	5½d.
O.G. GUTTERS.			
3 in.	1/8	1/4½	3½d.
3½ in.	1/8	1/4½	3½d.
4 in.	1/9½	1/4½	3½d.
4½ in.	1/11½	1/7½	4½d.
5 in.	2/4½	1/10½	5½d.

RAIN-WATER PIPES, &c.

per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/10½	1/3	1/9½
2½ in. „	2/0½	1/4½	2/1½
3 in. „	2/6	1/9	2/7½
3½ in. „	2/11½	2/0½	3/0½
4 in. „	3/5	2/6½	3/8½

L.C.C. COATED SOIL PIPES—London Prices ex Works

	Pipe.	Bends. stock angles.		Branches. stock angles.	
	s.	d.	s.	d.	s. d.
2 in. per yd. in 6 fts. plain	3	3	2	4½	2 10
2½ in. „	3	9	2	7½	3 7
3 in. „	4	6	2	10	4 2½
3½ in. „	4	11½	3	7	4 11½
4 in. „	5	5½	4	0½	5 9

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

	Pipe, stock	Bends, angles, stock	Branches, angles, stock
	s. d.	s. d.	s. d.
3 in. per yd. in 9ft. lengths	4 4	5 1	8 0½
4 in. „ „	6 2	5 8	10 0
5 in. „ „	7 2	10 10	17 1
6 in. „ „	8 6	13 2	21 9

Gasken for jointing, 38/6 per cwt.

	Per ton in London. £	s.	d.		£	s.	d.
IRON—							
Common bars	13	0	0	to	14	10	0
Staffordshire Crown Bars— Good merchant quality	14	5	0	to	15	15	0
Staffordshire Marked Bars	16	5	0	..	17	5	0
Mild Steel Bars	10	0	0	..	11	0	0
Steel Bars. Ferro-Concrete quality, basis price	10	0	0	..	11	0	0
Hoop iron, basis price ..	12	0	0	..	13	0	0
„ Galvanised ..	27	0	0	..	28	0	0
Soft Steel Sheets, Black—							
Ordinary sizes to 20 g.	13	5	0	..	14	5	0
„ „ „ 24 g.	14	5	0	..	15	5	0
„ „ „ 26 g.	16	5	0	..	17	5	0
Sheets Flat Best Soft Steel, C.R. and C.A. quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	..	16	10	0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16	10	0	..	17	10	0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18	10	0	..	20	10	0
No. 1 quality £4 per ton extra.							
Flat and Galvanised Corrugated Sheets—							
Ordinary sizes, 6 ft. to 9 ft. to 20 g.	18	0	0	..	19	0	0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18	10	0	..	19	10	0
Ordinary sizes 6 ft. to 9 ft. to 26 g.	21	10	0	..	22	10	0
Sheets Galvanised Flat, Best quality—							
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	22	0	0	..	23	0	0
Best Soft Steel Sheets, 22 g. and 24 g.	24	0	0	..	26	0	0
Best Soft Steel Sheets, 26 g.	25	10	0	..	26	10	0
Cut Nails, 3 in. to 6 in. ..	19	0	0				

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c.

(Delivered in London.)	£	s.	d.
LEAD—Sheet, English, 4 lb. and up	29	10	0
Pipe in coils	30	0	0
Soil pipe	33	0	0
Compo Pipe	31	10	0

NOTE.—Countrydelivery,20s.per ton extra ; lots.under 3 cwt. 3s. per cwt.extra, and over 3 cwt.and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes. 5s. cwt. extra.

	£	s.	d.
Oil lead, ex London area, at Mills per ton	20	5	0

COPPER.

		s.	d.
Seamless Copper tubes (basis)	per lb.	1	0½
Strong sheet	„	1	0
Thin	„	1	1
Copper nails	„	2	3
Copper wire	„	2	4

PLUMBERS' BRASS WORK.
Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz

CAPS AND SCREWS.

1¼ in.	1½ in	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps ..	33/-	41/	56/-	101/- per doz.
8 lbs. S. traps ..	35/-	45/-	66/-	126/- „

TIN.—English Ingots, 3/1 per lb. SOLDER.—Plumber's 1/3, Tinmen's 1/6, Blowpipe 1/7 per lb.

PAINTS, &c.

			s.	d.
Raw Linseed Oil,	in pipes	per gallon	0	2 11
„ „ „	in barrels ..	„	0	3 1
„ „ „	in drums	„	0	3 3
Boiled „ „	in barrels ..	„	0	3 3
„ „ „	in drums	„	0	3 6
Turpentine	in barrels	„	0	3 10
„	in drums (10 galls).	„	0	4 0
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)			47	5 0

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

PAINTS, &c. (*contd.*)

		£	s.	d.
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J." Brand, and other best brands (in 14 lb. tins) not less than 5 cwt. lots	per ton delivered	66	15	0
Red Lead, Dry (packages extra) ..	per ton	38	10	0
Best Linseed Oil Putty	per cwt.	0	15	0
Filicol	"	0	15	6
Size. XD quality	1kn.	0	3	6

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per ft.		Per ft.
15 oz. fourths ..	2½d.	32 oz. fourths	6½d.
15 " thirds ..	3½d.	32 " thirds.....	9½d.
21 " fourths ..	4d.	Obscured Sheet, 15 oz.	3½d.
21 " thirds....	4½d.	" 21 "	4½d.
26 " fourths ..	4½d.	Fluted 15oz.6½d., 21oz.	9d.
26 " thirds....	6½d.	En'lled 15 oz.4½d.,21oz.6½d.	

Extra price according to size and substance for squares cut from stock

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per ft.
⅛ Rolled plate	4½d.
3/16 Rough rolled	5½d.
¼ Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic Stippolyte, and small and large Flemish White	5½d.
Ditto, tinted	8½d.
Rolled Sheet.....	4½d.
White Rolled Cathedral.....	4½d.
Tinted do.	6½d.

Cast plate is same price as rough rolled.

VARNISHES, &c.

		Per Gallon. £	s.	d.
Oak Varnish	Outside	0	14	0
Fine ditto	ditto	0	16	0
Fine Copal	ditto	0	18	0
Pale Copal	ditto	1	0	0
Pale Copal Carriage.....	ditto	1	4	0
Best ditto	ditto	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper	ditto	0	18	0
Fine Copal Cabinet	ditto	1	2	6
Fine Copal Flatting.....	ditto	1	0	6
Hard Drying Oak	ditto	0	18	0
Fine Hard Drying Oak	ditto	0	19	0
Fine Copal Varnish	ditto	1	0	0
Pale ditto	ditto	1	2	0
Best ditto	ditto	1	12	0
Best Japan Gold Size		0	12	6
Best Black Japan		0	10	6
Oak and Mahogany Stain (water)		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	6
Knotting (patent).....		1	5	0
French and Brush Polish		0	17	0
Liquid Dryers in Terebine.....		0	9	0
Culrass Black Enamel.....		0	7	0

NEW BUILDINGS IN SCOTLAND

Glasgow.—HOUSES.—The principal applications granted by the Glasgow Dean of Guild Court related to important housing schemes, plans for which were submitted for approval by the Glasgow Corporation Housing Department. At Knightswood the Corporation were empowered to construct roads and sewers in No. 4 and No. 7 areas at Dumbarton-road, west of Balmoral-street, Scotstoun, and at Haghill; also to erect in No. 7 area 302 three-apartment houses, 110 four-apartment houses, and 18 houses of five apartments. The department were also granted linings for the erection of 24 houses of three apartments and six of four apartments at Keppochhill-road and Roy-street, Springburn.

West Stirlingshire. — HOUSING. — The Western District Committee of Stirling County Council has received a letter from the County Clerk, stating that the Standing Joint-Committee and the County Council has approved of the housing scheme for Lennox town, embracing 24 houses, and for Strathblane, embracing eight houses, and also to the borrowing of the sums of £13,000 and £4,300 respectively.

Haddington.—HOSPITAL.—A sale, opened by Lady Hersey Baird, of Lennoxlove, has been held in the Knox Primary School, Haddington, on behalf of the funds of the proposed Haddington Cottage Hospital.

Bellahouston Park.—The Secretary of State for Scotland has met the representatives of Glasgow Corporation and discussed the question of the removal of Bellahouston Hospital from the site it occupies in Bellahouston Park, in order that the ground may be available for recreation purposes.

Edinburgh.—RECONSTRUCTION.—The reconstruction of the Empire Palace Theatre, Edinburgh, is to be a bigger undertaking than was originally anticipated. At first it was intended to rebuild only the auditorium and the stage, but some adjoining property has been acquired, and it has been decided to rebuild also the entrance to the theatre.

Innerleithen.—HOUSES.—The Town Council has accepted the tender of Messrs. John Monteith, of Dalkeith, for the erection of 28 houses at £10,097.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rate of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons',‡ Bricklayers',‡ Plasterers',†
Aberdeen	1/8	1/8½	1/8	1/8	1/8	1/8	1/7	10½d. to 1/1
Airdrie	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3
Alexandria	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2½ to 1/3½
Arbroath	1/7	1/7	1/7	1/7½	1/7	1/7	1/5½	1/1½
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/6½	1/3
Bathgate	1/8	1/8	1/8	1/8½	1/8	1/8	1/6½	1/2 to 1/3
Blairgowrie	1/7	1/7	1/7	1/7½	1/5	1/7	1/4	10d. to 1/-
Bo'ness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Coatbridge	1/8	1/9	1/8	1/8	1/8	—	1/6½	1/3½
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dumfries	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Dunfermline	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/7½	‡1 2¾ †1 3–1/3½
Edinburgh.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Falkirk	1 7½	1 7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Glasgow.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Greenock	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/0½ to 1/3½
Hamilton	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Hawick	1/7	1/7	1/7	1/7–1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½
Inverness	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/- to 1/2
Kilmarnock	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkcaldy	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/7½	‡1/2¾ †1/3–1/3½
Kirkwall	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/-
Lanark	1/8	1/8	1/8	1/9	1/8	1/8	1/6	1/- to 1/2
Leith	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Motherwell	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Perth	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3
Stirling	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/7½	1/2½
Stirlingshire (Eastern District)	1/8–1/10	1/8–1/10	1/8	1/9	1/7	1/8	1/6½	1/3½
Wishaw	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 232.

PAINT MANUFACTURERS' CONVENTION

The Associated Houses of Robt. Ingham Clark and R. Gay and Co., Ltd., held their third annual Convention of Wholesale Distributors, on January 20th. The principals of their distributing houses, who had travelled from all over the country to be present at this Conference, met at West Ham Abbey at 10.30 a.m., and were welcomed most heartily by Mr. R. Fell Clark, Chairman of R. Gay and Co., Ltd., who also acted as Chairman for the meeting. The Chairman stated that for the last two years they had invited the representatives of the merchants to visit their works, but this year they felt, rather than teach the representatives anything, they would welcome suggestions made by the principals which might lead to their mutual benefit. He then called upon Major R. H. Ingham Clark, General Sales Manager of the associated houses, who addressed the meeting on co-operation between merchant and manufacturer. He stated that friendship was the basis upon which they had built up their business, and dwelt at length upon the service that the Associated Houses gave to their distributors. Selling campaigns, exhibitions and advertising were mentioned, while a great point was made of the visit of the Portsmouth Master Decorators' Association to West Ham Abbey. This visit was organised by Messrs. Thompson (Portsmouth), Ltd., and Major R. H. Ingham Clark extended a warm invitation to other Master Decorators' Associations in the Kingdom.

Mr. Harman then gave a highly interesting and comprehensive talk on window displays, his main point being the advantages of modern open type of window displays compared with the old style of windows crowded with vast assortment of unarranged articles. Mr. Casson then entertained the assembly with a pithy, logical and well argued discourse on advertising. He compared the power of the Press with mailing campaigns, window displays, etc. After lunch a tour of the up-to-date and well-equipped works was made, and the manufacturing processes of paint, varnish and enamel was fully described.

RURAL HOUSING

The Minister of Health has just addressed an important circular to County Councils, drawing their attention to the fact that the amount of work which has so far been put in hand under the Housing (Rural Workers) Act is comparatively small. This official statement, a correspondent writes, "ingeniously conceals the fact that the number of houses now being reconditioned under the Act can almost be counted on the fingers of the hands. For the Act is so complicated, and the conditions are so guarded, that in many cases local bodies, especially in rural districts, fail to understand its provisions. It was, of course, framed in order to aid in the reconstruction and repair of dwellings in rural areas, and the conversion into dwellings of buildings not previously used for that purpose. Grants may be given amounting to two-thirds of the estimated cost of the alterations, but are limited to £100 for any one house. The conditions are so devised as to ensure that the advantages of any assistance by way of grants are secured to the tenant, and that these conditions in themselves provide little, if any, opportunity of using the Act for private profit. It has, however, been generally overlooked that the help can be given to houses in *urban* districts as well as in rural, for it is expressly stated that the assistance is being given to aid agricultural workers or those 'whose economic condition is substantially the same.' This latter clause is far-reaching, and at the present time officials are inquiring as to whether it may not be used in order to help forward to a limited extent Mr. Neville Chamberlain's ideas of remedying urban slum conditions by helping associations to carry out a policy of repair."

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	0
Add if in clay	,, ,,	1	0
Add for every additional depth of 6 ft.	,, ,,	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	,, ,,	1	0

CONCRETOR.

Portland cement concrete in foundation 1 to 6	per yard cube	38	0
Add if in underpinning in short lengths	,, ,,	7	0
Add if in floors 6 in. thick	,, ,,	3	3
Add if in beams	,, ,,	3	9
Add if aggregate 1 : 2 : 4	,, ,,	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	,, ,,	2	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	32	0	0
Add if in stocks	,,	7	10	0
Add if in Staffordshire blues	,,	22	0	0
Add if in Portland cement and sand	,,	1	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

Neat flat struck or weathered joint	,, ,,	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	,, ,,	0	0	10
Axed in stocks	,, ,,	0	1	9
Rubbed and gauged jointed in putty camber or segmental	,, ,,	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	,, ,,	0	1	0
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	,,	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	,, ,,	9	6
Three-quarter-inch on flats in two thicknesses	,, ,,	6	3
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	,, ,,	1	2

MASON.

York stone templates fixed	per foot cube	13	0
York stone sills fixed	,, ,,	22	0
Bath stone and all labour fixed	,, ,,	10	6
Beer stone and all labour fixed	,, ,,	15	0
Portland stone fixed	,, ,,	20	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do. 20 in. × 10 in. Do. Do.	,,	80	9
Do. 24 in. × 12 in. Do. Do.	,,	90	0

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	5	0
Do. joists	,, ,,	5	6
Do. roofs, floors and partitions	,, ,,	6	0
Do. trusses	,, ,,	8	6

		¾″	1″	1¼″	2″
Deal rough close boarding	per sq.	35/6	40/-	45/-	72/-

Flat centering for concrete floor, including struts or hangers	,,	50	0
Do. to beams	per ft. sup.	1	0
Centre for arches	,,	1	6
Gutter boards and bearers	,,	1	0

FLOORING.

		¾″	1″	1¼″	1½″
Deal-edges shot	per sq.	—	44/6	53/-	60/6
Do. tongued and grooved	,,	—	49/-	57/6	65/-
Do. matchings	,,	45/-	51/-	—	—
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/-	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	,, ,,	2	1
Add for fitting and fixing	,, ,,	0	3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	,, ,,	3	9

DOORS.

		1½″	1¾″	2″
Two-panel square framed	per ft. sup.	2/1	2/4	2/6
Four-panel Do.	,,	2/5	2/8	2/11
Two-panel moulded both sides	,,	2/8	2/11	3/2
Four-panel Do. Do.	,,	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1″	1¼″	1½″
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	,,	1/4	1/6	1/9
Add if cross-tongued	,,	2d.	2d.	2d.

STAIRCASES.

	1″	1¼″	1½″	2″	2½″
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail : average, 3 in. × 3 in.	,, ,,	6	0
Add if ramped	,, ,,	12	0
Add if wreathed	,, ,,	24	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	16	3
Plain compound girders	,,	19	0
Do. stanchions	,,	21	9
In roof work	,,	27	6

RAIN-WATER GOODS.

		3″	4″	5″	6″
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	,,	1/9	2/-	2/6	3/3
Rain-water pipes with ears	,,	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	,,	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	,,	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	43	0
Do. Do. in flats	,,	42	0
Extra labour and solder in coated cesspools	each	6	9
Welf joint	per ft. run	0	6
Soldered seam	,, ,,	1	3
Copper nailing	,, ,,	0	4

		½″	¾″	1″	1½″	2″	4″
Drawn lead waste	per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service	,,	1/8	2/2	2/7	3/10	—	—
Do. soil	,,	—	—	—	—	—	6/9
Bends in lead pipe	each	—	—	—	—	3/3	8/2
Soldered stop ends	,,	1/2	1/8	2/1	2/10	3/6	—
Red lead joints	,,	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	,,	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	,,	—	—	—	14/7	19/6	—
Bib cocks and joints	,,	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	,,	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard. sup.	2	6
Do. Do. Sirapite	,, ,,	2	9
Do. Do. Keen's	,, ,,	4	0
Add saw lathing	,, ,,	1	7
Add metal lathing	,, ,,	2	6
(Not including hangers or runners, etc., for suspended ceilings.)			
Portland cement screed	,, ,,	2	2
Do. plain face	,, ,,	3	3
Mouldings in plaster	per 1 girth	0	1¾
One-and-a-half granolithic pavings	per yard sup.	5	9

GLAZIER.

		s.	d.
21-oz. sheet plain	per foot sup.	0	8½
26-oz. Do.	,, ,,	1	0
Obscured sheet	,, ,,	1	1
⅛-in. rolled plate	,, ,,	0	9
¼-in. rough rolled or cast plate	,, ,,	0	10½
¼-in. wired cast plate	,, ,,	1	4

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	,, ,,	0	7
Plain painting, 1 coat	,, ,,	0	9
Do. 2 coats	,, ,,	1	2
Do. 3 coats	,, ,,	1	9
Do. 4 coats	,, ,,	2	4
Graining	,, ,,	2	3
Varnishing twice	,, ,,	1	9
Sizing	,, ,,	0	3
Flatting	,, ,,	0	7
Enamel	,, ,,	1	1
Wax polishing	per foot sup.	0	6
French polishing	,, ,,	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployments Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TRADE NEWS

Change of Address.

Messrs. C. H. Gibson, Ltd., builders and contractors, late of George-street, Croydon, have removed to new and more extensive works and offices at 509, London-road, Croydon. Their Purley branch remains unchanged.

An Amalgamation of Asphalte Firms.

An interesting announcement has recently been made of the amalgamation, on January 1 this year, of the old-established companies The Val de Travers Asphalte Paving Co., Ltd., and Thos. Faldo and Co., Ltd., of Windsor House, Kingsway. The Val de Travers Company, which has important mining interests in France, Switzerland, Sicily and Germany, was established in 1871, and is one of the largest producers of natural asphalte rock in the world, supplying each year thousands of tons of the rock to many British and Continental users. Messrs. Thos. Faldo and Co. were founded in 1851, and have for many years been recognised as specialists in all asphalte work in connection with buildings. They are the sole concessionaires for Great Britain and North America of the Seyssel Mines, known as Les Mines De Bourbonges A Lovagny Bassin De Seyssel (Haute Savoie), France. Mr. W. T. Faldo and Mr. James A. Scott have been appointed to act as joint managing directors.

London Life Association Building.

We learn that the cork flooring used in this building—illustrated and described in our issue of January 13—was supplied by Messrs. Robinson Bros., Cork Growers, Ltd., of Little Somerset-street, Aldgate High-street, E.1.

Preservation of Kenilworth Castle.

Referring to the work of preservation of Kenilworth Castle, which has been going on for some years, and in particular, the maintenance of the outer walls—known as Leycester's Buildings—the *Birmingham Post* says: "... but the tackling of Leycester's Buildings has presented a harder problem, for it was deemed unsafe to erect the old type of scaffolding surrounding the ruins. However, the difficulty has been overcome, and the work of preservation is making good progress." This new scaffolding used was supplied by Scaffolding (Great Britain), Ltd., of Stockwell, S.W.8, specialists in tubular steel scaffolding.

The Westminster Flood.

We learn from Messrs. T. R. Rudd, John Tanner and Sons (London), Ltd., that they have now been able to dispose of all the water, dirt and effects of the recent flood from their studio and workshops at 45, Horseferry-road, Westminster. They are, therefore, able to carry out any fibrous plaster work placed in their hands with the usual due expedition.

Troughed Steel Sheet Piling.

We learn that the British Steel Piling Co., Ltd., of 54A, Parliament-street, S.W.1, has secured the rights for the British Empire of "Larssen" troughed steel sheet piling. This type of piling has been used largely on the Continent for several extensive jobs, and we understand that the "B.S.P." Co. have in stock a complete range of sections, and are able to supply the right type for every kind of work, and in addition to supply the equipment for driving it. Full information will be sent on request.

Auto-powered Trucks.

A remarkable instance of the adaptation of the motor-cycle engine to modern commercial transport problems can be seen on the G.W.R. station at Paddington, where a number of Lister auto-trucks are in use day and night, dealing with the loading and unloading of parcels. The facility with which luggage and goods can be transported is truly surprising, and speaks much, not only for the reliable J.A.P. power unit provided, but also for the real solution to the problem of expeditious handling of goods the auto-trucks afford. Made by the well-known firm of R. A. Lister and Co., Ltd., Dursley—from whom full particulars can be obtained—the trucks should prove of special interest to all who are faced with transport problems of any description.

New Colour Showrooms, Edinburgh.

Messrs. Thos. Parsons and Sons have acquired premises at 54, Queen-street, Edinburgh, a one-time fashionable residential quarter. They have converted the second floor into a suite of magnificent showrooms specially for the use of architects and the trade generally. Modern mills have been installed to deal with orders for special colours, and these can, with few exceptions, be executed within a few hours. Architects and decorators are cordially invited to view the premises, and when suggestions for decoration are required to either bring or send their clients to the showrooms.

The Sukkur Barrage, India.

The barrage will be situated on the River Indus below the Sukkur Gorge, about three miles from Rohri, and will hold up water for feeding canals to irrigate a large tract of the Province of Sind. It will be the largest of its kind in the world, and will consist of 66 spans. The province, practically the size of England, is mainly devoted to agriculture, and has about 15,000,000 acres of cultivable land. It is for the purpose of ensuring and regulating ample supplies of water that the Sukkur project has been developed. Sukkur barrage will provide irrigation for 6,000,000 acres. Seven canals will take off from the barrage, four from the left bank and three from the right. Each span of the barrage will be fitted with a "Stoney" sluice gate 60 ft. wide by 18 ft. 6 in. deep. These gates will be generally of the same design as supplied by Ransomes and Rapier for the Suleimanki and Ferozepore barrages of the River Sutlej and for very many other barrages in India and other parts of the world.

Asbestos Workers' Canteen.

Messrs. Turner Bros. Asbestos Co., Ltd., of Trafford Park, held a luncheon on January 18th to inaugurate the new canteen that has been opened for the benefit of the workpeople. Mr. Samuel Turner, the chairman of the company, presided, and in the course of a speech said that it was a happy coincidence that they should be celebrating the opening of that canteen at the same time as the great conference was meeting between the leading industrialists and trade union leaders, initiated on the suggestion of Sir Alfred Mond, for whereas they were dealing with first principles, and sought to explore every possible avenue for some structure within which the conflicting elements could operate harmoniously, yet it was not without significance that such work as they were celebrating that day was going on, not only here, but in many other places. He thought it was particularly gratifying that companies in many parts of this country had been giving practical effect to the doctrine of good will which was being so effectively preached.

Mr. B. E. Williams then proposed the toast of "The Press and Guests," to which Mr. F. W. Hewetson and Mr. J. M. Calder, A.R.I.B.A., replied.

False Trade Description: Middlesex Prosecution.

At Uxbridge Petty Sessions on January 23, F. Williams, general and builders' ironmonger, of High-road, Haves, Middlesex, was charged with applying a false trade description to goods by selling as Solignum an article not manufactured by Solignum, Ltd., who are the sole makers and proprietors of this well-known wood preservative. Defendant pleaded guilty to each of four summonses, and was fined 4 guineas and 20 guineas costs.

"A Celebration Dinner."

In our report under this heading in our last issue, two mis-spellings unfortunately occurred, i.e., in the name of Major R. J. Holliday, now managing director of the firm of Holliday and Greenwood, Ltd., and in that of Mr. D. Middlemiss.

PATENTS

APPLICATIONS PUBLISHED.*

277,045.—E. Johnson, C. Farr, and W. Boulton, Ltd.: Machine for shaping pottery and other articles from clay.

277,051.—A. Ashby: Waterproofing-composition.

277,097.—H. Macfarlane: Smoke-testing apparatus for pipes and drains.

277,126.—E. C. Caley and C. Downs: Apparatus for producing walls of concrete.

277,149.—R. Grierson and Grierson, Ltd.: Installation of electric conductors in buildings.

277,169.—T. Stirling and Stirling & Johnson, Ltd.: Roofing tiles.

277,175.—F. Beardmore and W. Boulton, Ltd.: Potter's drying-stove.

277,192.—W. Wilson: Manufacturer of faced or ornamental concrete.

262,745.—A. Wagner: Method of drying damp rooms and buildings.

277,226.—I. J. O'Hea: Ventilation of factory or farm buildings.

266,365.—V. Aerni: Mould for the manufacture of an artificial stone.

277,243.—C. H. Barton and H. Mayson: Cavity walls.

277,252.—R. J. Lyne: Moulds or forms for monolithic concrete building-construction.

277,389.—G. N. White: Method of and means for the production of coloured effects in building materials.

277,417.—E. Cumberland: Method of and means for the prevention of corrosion.

277,444.—R. de Wolf: Preparation for treating jointless floors.

277,472.—K. D. Mackenzie: Sheet-metal structures.

277,486.—H. G. Linfield: Heating apparatus for buildings.

277,491.—F. W. Willis: Fireplaces.

253,899.—H. W. D. Armstrong and S.E. Armstrong: Garage-door opening and closing devices.

277,502.—C. Terry and E. E. Lewis: Sanitary trap for sink pipes.

277,513.—D. L. Irwin and Ruberoid Co., Ltd.: Material adapted for use in forming expansion joints in concrete roads.

267,518.—W. Kyber: Process for the simultaneous manufacture of iron phosphide and fused cement.

277,578.—S. Mogyoros and S. Visi: Fireplaces.

The Norwegian Church, Rotherhithe.

In connection with the illustration of this building published in our issue for January 20, the name of the builders should have been given as Messrs. G. E. Wallis and Sons, Ltd., of Broadmead Works, Maidstone.

A Manufacturers' Dinner.

The Celotex Co. of Great Britain gave a dinner at the Savoy Hotel on Thursday, January 26, to their distributors throughout England, Ireland and Wales, Mr. Dunkerley, the managing director, taking the chair. After the customary loyal toasts had been honoured, Mr. Dunkerley said he was in the happy position of calling a toast for all Celotex distributors. Business to-day must be done through distributors, who could not be dispensed with. Celotex, he said, was being sold in every country throughout the world.

Mr. Munro, the vice-president of the Celotex Co., also spoke in high terms of the excellent work being done by the distributors, and of the greatly increased sales of the material. Amongst the other speakers was Mr. Bardolph, of the Merchant Trading Co. During the week daily conferences of distributors had been taking place at the Merchant Trading Co.'s offices. For the entertainment of the guests an excellent musical programme was provided. Mr. G. S. Sale and Miss Sale, and Mrs. Dunkerley were among those present.

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* All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

WESTON BUILDERS' DINNER

Mr. George Sprake, President of the Weston-super-Mare Master Builders' Association, presided at the annual dinner of the Association. Mr. W. H. Orram, organising secretary of the South-Western Federation of Building Trades' Employers, said that in accordance with a sliding scale agreement, there would be a national reduction in the wages of operatives from February 1st, of a halfpenny an hour. The plasterers and bricklayers were not parties to the National Joint Council, and were therefore claiming that this reduction did not apply to them. So far the bricklayers had said nothing, but the local operative plasterers' secretary, Mr. F. E. White, had written to the Press warning employers that the reduction did not apply to plasterers; he had, however, overlooked one or two fundamental facts. One was that the employers were parties to the National Council, and had agreed to abide by the decisions of that Council, another was that the South-Western Federation of Building Trades' Employers had always maintained the principle that if the cost of living went down the building public were entitled to receive the benefit of such reduction. It would be manifestly unfair to reduce the wages of carpenters and joiners and leave plasterers and bricklayers at their present level. It would be tantamount to saying that the plasterers were determined to keep up the cost of building. Notices had been posted in all their works that the reductions would be enforced from February 1st for all crafts, which included plasterers, and though it might be that here and there some little difficulty would occur, the South-Western Federation would back up employers in the matter.

The Chairman, submitting the toast of "Weston-super-Mare," said it was the pioneer speculative builder who had first roused the olden Weston from the lethargy of a small fishing village.

OBITUARY

Mr. William Harbrow.

It is with very great regret that we announce the death of Mr. William Harbrow, F.I.O.B., Chairman of William Harbrow, Limited. He was the founder of the original business which bears his name, and which was exceedingly well known in connection with the manufacture of iron and composite buildings, not only throughout the United Kingdom, but in other countries, overseas, to which are exported the various types of buildings. Born in Sussex in 1856—the son of a farmer—he had the great misfortune to lose his father in early life. Whilst this probably explains why he did not take up agricultural pursuits it is interesting to know he always retained a great interest in farming. Passing out of his apprenticeship as a carpenter and joiner, he was—like many other young men of his time—attracted to London, where, after a somewhat brief period of service with some of the larger builders, including that of Messrs. Humphreys, Ltd., of Knightsbridge, he ultimately decided to enter business on his own account.

He was elected a Fellow of the Institute of Builders in 1921, following the joining up of his firm in 1918 with the London Master Builders' Association. Possessed of so many excellent qualities which tend to make the successful business man, it is somewhat difficult to name any special one. He possessed a very conservative nature, which brought him many friends amongst the firms with whom he traded, and the great success achieved by him during the War period was largely attributable to the high regard in which he was held by his suppliers, who appreciated his invariable efforts to place his orders in the hands of those who had given him excellent service in the years gone before.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him next week not later than Tuesday evening.

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modifications.*

Axminster.—Fourteen cottages on the North-street site, for the U.D.C.:—
*Moulding & Sons £4,616 15

Blackpool.—Garage, etc., at Queen's-drive, North Shore, for the Savoy Hydro, Ltd. Messrs. Hindle & Waterhouse, architects, 5, Cedar-street, Blackpool:—
*Atherton Bros. (Blackpool), Ltd., Blackpool.

Bootle.—119 houses, on Monfa-road, Ainsdale-road and Fernhill-road, for the C.B.:—
*Lloyd & Cross, Ltd., Birkenhead.

Bradford.—New Sunday School hall and rooms for Second Church of Christ, Scientist. Messrs. T. E. Davidson, Son & Sherwood, architects, 14, Rectory-drive, Gosforth, Newcastle-on-Tyne:—
*J. Moulson & Son, Ltd., Bradford £3,345 2 6

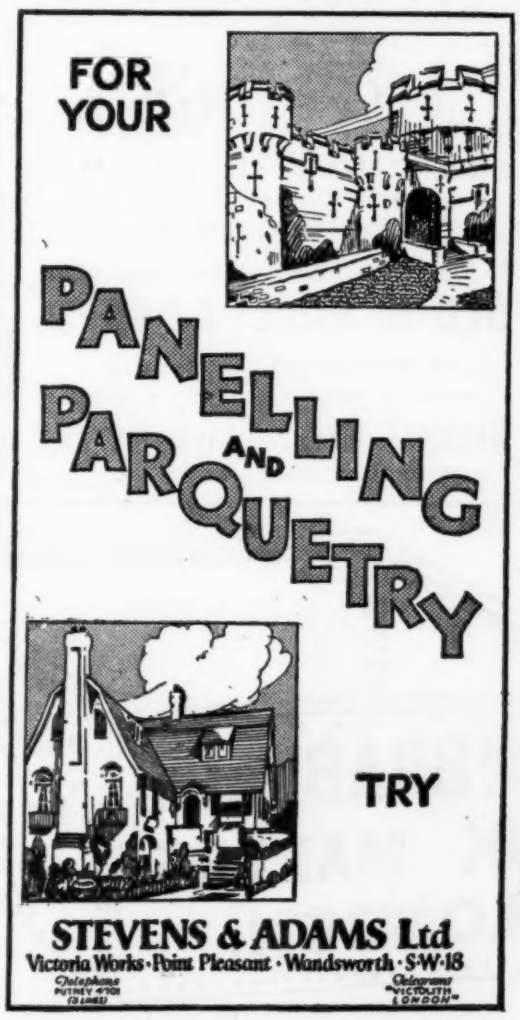
Bridlington.—Clinic and maternity and child welfare centre, in Oxford-street, for the T.C. Borough Engineer and Surveyor:—
J. H. Hudson & Sons, Bridlington.
H. E. Turner & Sons, Ltd., York.
Platt & Featherstone, Ltd., Goole.
Wm. Birch & Sons, Ltd., York.
H. Gray, Hull.
Markwell, Holmes & Hayter, Ltd., Hull.
Ernest Gray, Bridlington.
Sellars, Bridlington.
A. E. Jones (Hull), Ltd., Hull.
Wittiug & Walker, Bridlington.
Anthony Lyons, Norton, Malton.
Kneeshaw & Sons, Bridlington.
Gant & Silverside, Bridlington.
*W. & F. Usher, Bridlington £1,062 16 11

Camborne.—Twelve houses in Manor-rd., for the U.D.C.:—
*J. H. Lobb, Mevagissey.

Chadderton.—Bridge over the Rochdale Canal at Grimshaw-lane, Chadderton. Mr. W. H. Schofield, architect:—
*J. M. Firth & Son, Todmorden.

Chester.—Demolition of house and shop property in the Handbridge and Mill-street area, for the T.C. Mr. C. Greenwood, City Surveyor:—
*B. Gray, London.

Clacton-on-Sea. — Alterations to "Princess Helena" Public House, Holland-on-Sea, for Messrs. Greene, King & Co., Ltd. Messrs. Naish & Mitchell, architects, Bury St. Edmunds:—
*A. Evans & Co.



Crewe.—Erection of a new quarters for nurses at the "Linden Grange" Maternity Home, Hungerford-avenue, for the Corporation. Mr. E. G. Timbrell, Borough Architect, Municipal Buildings:—
*S. Barnett, Crewe £1,299 3

Dublin.—Alterations to Pearse-street library, and painting work at Tara-street fire station, for the C.B. Mr. H. T. O'Rourke, F.R.I.A.I., City Architect:—

Pearse-street Library—	
J. F. Keatinge & Son, Grafton-street, Dublin	£266 10 0
Jones & Son, 114, Stephen's-green	225 0 0
T. Murphy, 149, Thomas-street	177 15 0
*James Daly, 61, Bolton-street	125 0 0
Tara-street Station—	
James Daly, 61, Bolton-street	269 0 0
J. F. Keatinge & Son, Grafton-street	254 18 8
Bolger & Tierney, St. Teresa's-road	250 0 0
J. Larkin, 99, Lr. Dorset-street	247 19 0
Joseph Warren, 4, North Summer-street	216 10 0
A. P. Watkinson, 121, Stephen's-green	200 0 0
L. & J. Duff, 562, N. Circular-road	198 6 6
Higgins & Sons, 11, Usher's-quay	196 0 0
C. Jones & Sons, 114, Stephen's-green	190 0 0
*J. G. Malcolm & Co., 24, Eden-quay	176 4 0

Glasgow.—Two steel-plate web girder bridges, on Edinburgh to Glasgow-road, for the T.C. Mr. D. A. Donald, engineer, 271, Alexandra-parade:—
Section B.C., bridges 7 and 8—
*Shanks & McEwan, Ltd., Glasgow.
Section B.C., bridge No. 1—
Masonry—
*Wm. Taylor & Son (Glasgow), Ltd., Glasgow.
Steelwork—
*Watt & Co., Ltd., Motherwell.

Innerleithen.—28 flatted houses in blocks of four, for the T.C. Mr. J. C. Miller, Borough Surveyor:—
*J. Montieth, Dalkeith £10,097 18 3

Leigh.—168 houses, in Cow-lane, for the T.C Mr. T. A. Clare, Borough Engineer and Surveyor:—
*Leyland Construction Co., Ltd., Preston.

London.—Repairs, paintings, etc., at the Guardians' Offices, for the Hammersmith B.G.:—
*J. W. Buckingham & Sons, London.

London.—Erection of block of 12 self-contained flats, in Northwick-mews, St. John's Wood, N.W.8, for Mr. Leonard T. Snell. Messrs. Browne & Fulton, architects and surveyors, 502, Edgware-road, W.2:—

Handover, W. H., & Sons	£4,649
Crook, W. H., & Son, ...	4,550
Nunn, L. E.	4,547
Barrett, M., Ltd.	4,429
Watts, G. N., Ltd.	4,389

(All of London.)

London.—Two electric lifts at Tramway Central Repair Depot, for the L.C.C.:—

	Push button control.	Controllers within cages.
Rawlinsons, Ltd., Leeds ...	£1,930 0	£1,920 0
Smith, Major & Stevens, Ltd., Northampton	1,704 10	1,630 10
Express Lift Co., Ltd., S.W.1	1,624 0	1,605 0
Hoisting Appliance Co., N.7	1,550 0	1,510 0
S. H. Heywood & Co., Ltd., Reddish	1,535 0	1,510 0
Herbert Morris, Ltd., Loughborough	1,510 0	1,490 0
*Holt & Willetts, Cradley-heath	1,240 0	1,200 0
†Marryat & Scott, Ltd., E.C.1	1,140 0	1,128 0

†Not complete.

Manchester.—Erection of British Legion Club House and 35 lock-up garages, at Hawthorn-road, Chorlton-cum-Hardy. Mr. E. W. Taylor, architect, Sandy-lane, Chorlton-cum-Hardy:—
*J. T. Scott, Chorlton-cum-Hardy.

Manchester.—Alterations to 70, Barlow Moor-road, Chorlton-cum-Hardy, for Messrs. Curwen Barrett & Son:—
*Lancaster & Taylor, Ltd., Manchester.

Newbury.—Rebuilding and extension of branch premises, Market-street, for Barclays Bank, Ltd. Messrs. Hoare & Wheeler, architects, 22, Portman-street, Portman-place, W.1:—
*Collier & Catley, Ltd., Reading.

Oldham.—Conveniences at the Hollinwood car depot, for the C.B.:—
*Whitworth Whitaker, Oldham.

Penarth.—New pier pavilion, for the U.D.C.:—
*J. Smith & Co., Cardiff £8,500

Penygroes.—Bakery for the Caernarvon Penygroes and District Co-operative Society, Ltd. Mr. Llewelyn Lloyd Jones, architect and surveyor, Lloyds Bank-chambers, Caernarvon:—

G. & W. Land, Caernarvon	£780 0
G. & J. P. Gregory, Caernarvon	731 0
J. T. Jones, Pwllheli	706 0
John Owen, Bangor	689 4
Geo. F. Williams, Caernarvon	615 0
*D. J. Roberts, Caernarvon	600 0
Jones & Wms, Caernarvon	548 0

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Portsmouth.—New showrooms, Granada-road, for Messrs. Haigs Motor Co., Ltd. Messrs. Thomas & Wilkins, architects, 30, Landport-terrace, Southsea. Quantities by the architects:—

Saml. Salter, Southsea	£2,891	0	0
F. Bevis, Ltd., Portsmouth	2,700	0	0
Jno. Croad, Portsea	2,650	0	0
H. E. Pitt, Portsmouth	2,613	16	11
John Lay & Co., Portsmouth	2,548	0	0
S. A. Evans, Southsea	2,495	0	0
H. Jones & Son, Southsea	2,493	0	0
F. H. Jordan, Ltd., Portsmouth	2,423	0	0

Portsmouth.—Widening of Fratton-bridge, over the Southern Railway, at Portsmouth, together with incidental works, for the T.C. Mr. R. J. Jenkins, City Engineer. Quantities by the City Engineer:—

A. Waterman, Leeds.
Frank Bevis, Ltd., Portsmouth.
Sadler & Co., Cosham.
A. E. Farr, London.
*Bolton & Lakin, Ltd., Birmingham ... £6,011

Ramsgate.—Reconstruction of Cavendish House into police station and erection of cells, parade room, motor ambulance station, and mortuary, for the T.C. Mr. H. H. Stroud, architect, 37, High-street. Quantities by Messrs. Foster & Barber, quantity surveyors, High-street, Broadstairs:—

G. Browning, Canterbury	£17,081
G. J. Attwood & Co., Ramsgate	16,422
Norman Smith & Son, Maidstone	15,871
Grummant Bros., Ramsgate	15,254
E. Martin, Ramsgate	14,769
J. T. May, Broadstairs	14,505
*W. W. Martin, Ramsgate	14,348

(Subject to approval of the Home Office and M.H.)

Salford.—Limewashing in the boiler-house and turbine-house at the Agecroft power station, for the C.B.:—

*R. W. Pugh, Pendleton £160

Shepperton.—Twenty-two houses, at Shepperton, for the Staines R.D.C.:—

*W. J. Drowley, Woking £8,030

Stafford.—16 houses on the Stone-road housing estate, for the Corporation. Mr. W. Plant, Borough Engineer:—

*A. Powell, Wolverhampton ... £7,802

Weymouth.—Garage at Weymouth, for Messrs. Tilleys. Mr. S. A. Jackson, L.R.I.B.A., architect, National Provincial Bank-chambers, Dorchester:—

C. E. Slade, Dorchester	£6,295	17	6
Watts Bros., Dorchester	6,075	0	0
Southlands Estate Co., Weymouth	6,048	0	0
Bird & Cox, Weymouth	5,949	14	8
Theo. Conway, Ltd., Weymouth	5,897	0	0
Parsons & Sons, Weymouth	5,890	0	0
Jesty & Baker, Weymouth	5,413	0	0
*F. Box, Bournemouth	5,043	6	0

Willenhall.—122 non-parlour type houses on the Albion-road site, for the U.D.C. Mr. G. A. Waite, engineer and surveyor:—

*A. M. Griffiths & Son, Ltd., Wolverhampton ... £41,129

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